Aspects of the prehistoric archaeology of the Wear Valley, Co. Durham.

Young, R.

ASPECTS OF THE PREHISTORIC ARCHAEOLOGY OF THE WEAR VALLEY, CO. DURHAM

by

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Graduate Society

This thesis is submitted for the degree of Doctor of Philosophy in the University of Durham.

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DECLARATION

I declare that except where otherwise acknowledged the research for this thesis has been entirely my own work. I declare that this thesis has not been submitted in substance for any degree and is not being currently submitted in candidature for any degree elsewhere.

Robert Young

Robert Young

VOLUME I

DISCUSSION

ROBERT YOUNG

ASPECTS OF THE PREHISTORIC ARCHAEOLOGY

OF THE WEAR VALLEY, CO. DURHAM

Abstract

This thesis deals with aspects of the prehistoric archaeology of the Wear Valley from the river's source in western Durham down to Sunderland on the east coast. It is the product of field, documentary and museum research designed to collect and bring together archaeological data from a previously neglected area and attempts to provide a full typological and morphological discussion of the material in a northern British context. It also attempts to use the information in conjunction with available environmental data to produce models for prehistoric settlement and land and resource utilisation in the area from the Later Mesolithic to the Iron Age period.

The thesis is presented in three volumes. Volume 1 is a discussion of collected data in ten chapters. An initial discussion of the forces at work in the production of the archaeological distributions is presented (Ch. I) and the available environmental data are outlined and the study area described in detail (Ch. II). An attempt is made to set the present research into a historical context (Ch. III) and then the collected data are discussed under the headings, Flint and Chert Material, Polished Flint and Stone Axes and Shaft Hole Implements, Prehistoric Pottery, Bronze Metalwork, Burial Sites and Later Prehistoric Settlement Sites (Chs. IV - IX). Ch. X presents a detailed discussion of prehistoric settlement and land and resource utilisation. Volume 2 is an Inventory providing detailed descriptions of sites and finds arranged in six sections to correspond with Chs. IV - IX in Volume 1 and Volume 3 is a corpus of illustrative material.

Mr. Edward Laws F.S.A., concluding a paper delivered to the Cambrian Archaeological Association in 1896, a year after commencing with Mr. Henry Owen F.S.A. the Pembroke Archaeological Survey (1895-1906).

> "Any member who takes up the survey of a county will find it a very good corrective of self conceit. About twenty-five years ago, being in want of a hobby, I thought I would study the County of Pembroke, a small district in my own immediate neighbourhood. But I soon found that to know even a small slice of the world requires universal knowledge. The result of my experiment is that I am ruined as an archaeologist. I have no special subject but am a mere smatterer. While admitting this sad fact I always flattered myself that I did thoroughly understand my native county and now alas I find I know absolutely nothing about it".

(with thanks to Don Benson
Dyfed Archaeological Trust)

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PREFACE

A major aim of this survey has been to bring to the fore the prehistoric archaeology of the Wear Valley and to encourage further fieldwork by groups and individuals in the area. The valley remains a primary area of field research for the author, as survey work such as that contained in this thesis is a continuously developing process. A three year period of postgraduate research can hardly be said to have scratched the surface of the study area in terms of its overall potential, especially when most of the field walking was carried out by one individual. Continued field walking over areas previously examined regularly produces new information and all talk of "definitive surveys" and "conclusive proofs" should be treated with scepticism.

In the final stages of the completion of this work (September 1982) a visit to the site of the Crawley Edge cairnfield (NZ 001 397), ostensibly to re-photograph cairns already recorded (see Chapter VIII), revealed several further mounds to the north and east of the main cairnfield site and overlooking the Shittlehope Burn (centred on NZ 006 398). These were fully recorded at the time and while they were found at too late a stage to be included in the body of the thesis, (the details appear in Appendix 3), they will be fully published with the report on excavations carried out at the site. Their discovery is, however, encouraging as it supports the points raised above and also adds weight to some of the ideas on land use expressed in Chapter X. In addition it also continues to demonstrate the potential of even one small section of the upper dale for continued fieldwork, and it certainly provided the writer with "a very good corrective" for any "self conceit" which may have crept into his thinking about the finality of the work already carried out. One can only hope for further new discoveries in the course of any future work in the valley.

In the context of a preface, other comments should be made about this work. Throughout, the term "County Durham" has been used to describe the land between the Tyne and the Tees, in effect the old county proper. This has been done purely for ease of working and to eliminate clumsy cumulative references to Durham, Tyne and Wear and Cleveland, the new counties in the old area.

Altitudes, and dimensions of sites and monuments are expressed in both imperial and metric units and in some cases, where reference is made to material studied, described and published in the nineteenth and early twentieth centuries imperial units of measurement have been quoted and then converted to metric equivalents.

In the Inventory (Vol. 2) sites producing flint and chert material have been grouped into the categories, Mesolithic, Neolithic/ Bronze Age, Mixed and Indeterminate. All sites have been numbered consecutively and numbers are prefixed by the letter 'F' to denote flint. Similarly, the stone implements have been divided into two broad categories, polished axes and shaft hole/perforated implements, and the consecutive numbers are prefixed with the letters 'SI' (stone implement). The pottery and metalwork have, again, been ordered by type and numbers are prefixed with the letters 'P' and 'M' respectively. Burials and settlement sites have been similarly treated and site numbers have the prefixes 'B' and 'S' respectively.

Further comment is needed on the flint and chert material. Unless otherwise indicated by the following symbol +, all implements, flakes and blades have been drawn with the bulbar end to the top of the page. Written descriptions are also given with the piece in a similar position. Angles of retouch on scrapers and other implements have been measured, unless otherwise stated, at the worked edge on the long bulbar/distal axis of each piece. Where angles have been taken from published drawings, available sections were used.

Only complete waste flakes are included in the analysis of waste material and in all cases length was taken as the maximum dimension on the bulbar/distal axis and breadth as the maximum dimension at right angles to this axis. Throughout the description of lithic material, the term "utilised" has been taken to denote edge damage to a piece, caused through use.

Finally, it should be stressed again that it is intended that this work should be utilised by other people involved in fieldwork in the north east region. As a result it has been presented in three volumes in the hope that this will make for easy use. It should be possible to read the discussion, refer to a relevant section of the Inventory and then find the relevant illustrative material without difficulty. It is hoped that the information collated and discussed here will serve as a solid foundation for further and more detailed research in the area.

CHAPTER I

INTRODUCTION TO THE STUDY AND THE NATURE OF THE DATA

The river Wear is one of the British rivers which has preserved a vestige of its Roman name,(it is recorded by the geographer Ptolemy in his Itinerary as Vedra), (Watts, 1970, 252), but despite the fact that the valley has long been of great industrial importance to the north-east of England and to the country as a whole,very little else is known about it outside the northern region. The antiquarian and topographical writer Sopwith, writing in 1833, said, "There are not perhaps in all England three contiguous dales of greater interest and beauty than the mining dales of Tyne, Wear and Tees and yet they are comparatively unknown to the public" (1833, 16). Egglestone also made a similar point,with specific reference to Weardale,fifty years later (1883, 3),and the present writer would venture the same opinion today.

In the writer's experience, few people outside County Durham know of the exact location of the River Wear and even fewer know of its archaeology, particularly its prehistory. However, in recent years, with the setting up of the Open Air Museum at Beamish Hall near Stanley (NZ 213 548), a considerable interest has been aroused in the industrial archaeology of the north-east and Weardale and Teesdale,with their history of mineral exploitation,figure quite largely in this.

A further boost to the study of Upper Weardale at least, came in January 1978 with the foundation of the Weardale Field Study Society (a modern version ofEgglestone's "Weardale Naturalists Field Club" founded in 1896). This group has already published the first edition of its Journal and has sections dealing with the dale's geography, history, biology, geology and mining. Its formation augurs well for further interdisciplinary research in the area.

However, the prehistoric archaeology of the whole of the Wear Valley has remained neglected, and it was to try and rectify this and to bring to the attention of a wider audience, the archaeological potential of the area, that the present research was begun. The work itself stems from research and field work initiated by the writer in 1973-75 when an undergraduate student at University College Cardiff and it has had the following aims:

(1) To bring together for the first time all the available archaeological evidence from the valley to provide a data base for this, and hopefully other, research projects. This has been achieved in the form of the inventory of sites and monuments and artefacts which is an integral part of this work.

(2) To provide a full "typological" discussion of the sites, monuments and artefacts from the valley in a north of England context.

(3) To use the assembled data in conjunction with available environmental evidence from pollen diagrams etc. to build up models of land use and settlement which might be applicable to the Wear Valley in particular and the County and the north-east in general. These it is hoped may stimulate more discussion about the interpretation of certain aspects of the prehistory of the north-east of England.

(4) To use this material in conjunction with documentary and field research in the area to point out the archaeological potential of the valley, highlight questions about the area which might be answered by future research, and to indicate potential threats to the archaeology of the valley.

It is hoped that these moderate aims have been realised and that the work may add to the growing body of knowledge and interest in the archaeology of the north-eastern region.

Initial research concentrated on documentary sources, early topographical studies, O.S. records and aerial photographs, and the published works of local antiquarians and archaeologists. Most valuable amongst the latter were the privately published pamphlets of E.J.W. Hildyard which provided a useful starting point for much of the fieldwork in the upper dale. Card indices and distribution maps were prepared from the literary sources and the field and museum work, and a detailed list of sites, monuments and features identified from available aerial photographs from the study area was also built up.

Throughout the work the term "Wear Valley" has been taken to mean the river valley itself and all its tributary valleys and related interfluves. Related areas of the Durham coast and East Durham Plateau have also been included in the initial area of the survey (Fig. I:1).

For ease of study the valley has been divided into three major sections:

(a) Lower Wear Valley, (often referred to below as the "lower Wear"), from Chester-le-Street (NZ 273 513) to the sea, the tidal section of the river.

(b) Middle Wear Valley, (often referred to below as the "middle Wear"), between Bishop Auckland (NZ 210 290) and Chester-le-Street.

(c) Weardale - that part of the river west from Bishop Auckland. This in turn can be divided into Upper Weardale, (the "upper dale"), the valley west of Wolsingham (NZ 076 373) and Lower Weardale, (the "lower dale"), between Wolsingham and Bishop Auckland. Given the size of the area under study a total of approximately 450 sq. miles (1,150 sq. kms) of land extending through a varied topographical region, and the relatively short length of financed time available for the work, detailed field work had to be carried out selectively. This involved walking the areas around known sites (e.g. flint scatters and crop mark sites etc.) in the middle and lower Wear Valley, with more attention being paid to the previously neglected area of the upper dale. Here, field work has been concentrated in the area marked on Fig. I:2, special reference being paid to the valley of the Bollihope Burn, the area above Stanhope (NY 995 394) on the north side of the river and the whole of the valley floor and sides from Stanhope to Wearhead (NY 857 396).

The writer realises that the charge of building biases into the results of the work could be levelled, yet given the time constraints imposed on the project a scheme of priorities had to be worked out and strictly adhered to. The results of this field work can be seen from the Inventory. Several new sites have been discovered and substantial additions have been made to site complexes already recorded. A fuller discussion of the problems and limitations of the available evidence will be entered into below.

A concerted effort was also made to examine all the surviving artefactual material from the valley which could be traced to either museum or private ownership, and attempts have also been made to parallel all the artefact and site types within a northern British context and so provide a framework within which to discuss the Wear Valley material.

The research programme has also involved excavation work at two cairn sites at Crawley Edge above Stanhope in the upper dale. This was carried out in conjunction with Mr. A.T. Welfare, and two interim reports have been published (Young and Welfare, 1977; 1978). This aspect of the work has contributed significantly to our knowledge of burial ritual and land use in this area of the dale (see below, Chapter VIII and Chapter X).

SOME GENERAL PROBLEMS AND LIMITATIONS OF THE EVIDENCE

As with all recovered archaeological data there are many problems of interpretation. What does the evidence mean in terms of human activity? What does the distribution pattern of a certain implement or site type signify? Is it the true reflection of the "real" distribution of the artefact type or is it the product of sampling and collecting bias, in other words does it merely reflect and indicate the areas in which archaeologists have been actively looking for the observed data? Have physical, topographical and geographical conditions combined to militate against the finding of material in some areas and in favour of this happening in others?

Clarke was one of the first workers to articulate these questions explicitly, formulating the concepts of "depositional" and "post depositional" theory (1973, 16) and several researchers have since examined the distribution of archaeological material on the basis of this kind of questioning, i.e. Stevenson (1975, 104-108), Woodman (1978, 1-11), Martlew (1981, 11-13) and Hammond (1980-81) and Foley has advanced Clarke's initial ideas by modelling the processes involved in the formation of the archaeological record and testing these models by ethnographic observation (1981 and 1981a).

Stevenson (1975, 108) concluded that "the archaeological data contained in a distribution map are the product of two processes, first those that determined the original (i.e. real) distribution and secondly the factors that have affected the real distribution since its formation and have resulted in its present form". Stiles, in a discussion of the methods and applications of ethnoarchaeology (1977, 87-103) has expanded on the general thesis contained in Stevenson's work, producing the following flow chart of factors involved in the patterning of archaeological remains:

(1) Processes generating physical traces	→	(2) Processes disturbing pysical traces	→	(3) Destruction/ Burial
				↓
(6) Perceived traces	←	(5) Processes of extracting traces	←	(4) Preservation

(Stiles, 1977, 93, Figure 1). This construct, while still maintaining a generalised stance on the problem, encapsulates some of the major points to be examined below with particular reference to the study area. Hammond,on the other hand,was much more specific and particularistic in the conclusion to his own research. "The amount and distribution of artefacts on an archaeological distribution map is thus seen to be potentially influenced by at least four factors:

(1) The location of archaeologists acting in the area.

(2) The extent of their field work, this attenuating with distance.

(3) The nature of this field work, systematic field work being more efficient and effective in the discovery of sites.

(4) The rate of development of archaeological investigation in different areas.

Thus a map of archaeological material is to some extent likely to be an artefact of archaeological investigation" (Hammond, 1980-81, 215).

To put these questions and observations into some kind of perspective for the study area it might be instructive to take one area, in this case that part of upper Weardale west of Stanhope, and examine in detail such problems as are posed by the archaeological distributions.

As will be seen below (p. 37) Weardale itself is a narrow steep-sided section of the valley and within it many variables have interacted to bring about the present, observable archaeological distributions. The concentration of field workers in one area and their general lack in others, for example, may well play a large part in accounting for the concentration of flint scatter sites of all periods around Eastgate (NY 953 387). E.J.W. Hildyard who initiated the recording of most of the artefactual data from the dale, lived at Horsley Hall (NY 965 383) which is almost in the centre of the distribution pattern. This factor, linked with the lack of ploughing west of Eastagte,may also explain the seeming lack of flint sites at the upper end of the dale. Quite obviously if land is not ploughed flint implements, or any other artefacts, are not brought to the surface and cannot be collected and recorded.

Leaving this example aside for the moment and moving on to the general distribution of artefacts in the area, it could be argued quite cogently that a combination of all the points so far raised, plus other factors such as physical and topographical conditions, have combined to produce a distribution pattern which sees a concentration of material in the valley bottom and on the lower slopes. To illustrate this point we are fortunate that there exists for the upper dale a series of maps which shows modern physical, topographical, vegetational and pedological conditions in the area. These were produced by Dr. Atkinson of Leeds University as part of his Doctoral study of the pedology of upper Weardale (1968) and have been of inestimable value in considering the biasing factors inherent in the distribution patterns of archaeological material in the area.

Fig. I:3, (after Atkinson, 1968, 73, Fig. 31), shows the major vegetation types in the dale. In effect, all those areas in categories 2-7 inclusive could be written off as areas unlikely to produce artefacts given that anomalous activities such as ploughing for drainage, erosion of peat and turf or industrial/constructional activity of some kind, have not taken place. Indeed, any of the artefacts in the dale which have come from these locations, have nearly always been found as the result of one of these processes.

Fig. I:4, (after Atkinson, 1968, 103, Figure 41), shows the distribution of peat in this part of the dale. It can be seen that above 1500 ft. O.D. (461 m approximately) these organic deposits and soils may effectively mask any site represented by artefact scatters, again excluding them from discovery. However, Fig. I:5, (after Atkinson, 1968, 107, Figure 42) shows the degree and extent of peat erosion in the same area and the discovery of flint scatters at Wager Head in the dale (NZ 013 337) and Allenheads (NY 862 453) (Howchin, 1880), from just these kind of eroding areas, shows that many more sites may await discovery under the peat. Similarly, flint and stone material from the area around the Rookhope Smelt Mill chimney, (NY 905 443), and the chimney at Blackton over in Teesdale (NY 005 257), (Trechmann, 1912, 68-74), where arsenical fumes from the lead smelting process had killed off the vegetation cover and paved the way for peat erosion, also indicates that concentrated, long-term field work in these areas may yield important results. Johnson and Dunham (1963, 152-158) have also shown that archaeological material may be available from eroding peat deposits.

However, given the obvious constraints imposed by the nature of the vegetation cover, as shown in Figs, I:3, 4 and 5, and the fact that many areas of eroding peat etc. may be inaccessible to the field worker, the distribution pattern for artefacts in general in the dale, with its concentration of material in the area of "improved pasture" where ploughing is likely, and where the area is easily accessible, would seem a logical one, arguably not reflecting the full range of prehistoric human activity in the area.

Other processes may have actually destroyed sites demarcated solely by artefact scatters and even those evidenced by more solid structural features such as enclosures, hut circles and field boundaries. Quarrying and mining and the resultant dumping of excavated spoil is a serious problem for archaeological work in the dale and may well have destroyed many sites before records of any kind were kept. Fig. I:6,(based on Atkinson 1968, 65, Figure 27), showing the distribution of quarries and mines in the upper section of the dale, indicates the nature and scale of potential destruction. The quarries on the north side of the river between Eastgate and Westgate (NY 908 382) may be particularly important in this respect. The area does have a surviving complex of field boundaries and enclosures, but the quarries in question may have destroyed extensions of this complex. Similarly the quarries in the Rookhope Burn may have had a destructive effect and the quarrying around Stanhope has definitely destroyed one very important prehistoric site, that of the Heathery Burn Cave. Sites associated with the cairnfield on Crawley Edge (NZ 001 397) may also have been destroyed by the same process, as the whole of the western edge of this spur of land has been extensively quarried and lead mining and fluorspar extraction has taken place on quite a large scale to the north of the site.

As a corollary to the above it should also be pointed out that historical and recent land use patterns may also have been responsible for the actual preservation of some earthwork sites. For example at High Northgate (NY 937 400) and Old Park Farm, Eastgate (NY 925 385) the visible earthworks (Figs. IX.25; IX.21 and Pls. IX.10b, IX.11a and IX.15b) may have been preserved simply because they were inside the boundary of the Great Park, an important hunting area of the bishops of Durham (Drury, 1976, 143). This may have lessened their chances of being ploughed out. Similarly the two possible barrows near Horsley Hall (Horsley Hall "A" and "B", NY 9655 3840 and NY 9650 3835, Pls. VIII.14c and VIII.15a) may also have been preserved because of their location in parkland associated with the Hall, and the detailed complex of sites on Bollihope Common (NY 975 353) (Pls. IX.12a and IX.12b) no doubt owes its survival to the fact that the land is now marginal moorland used for sheep grazing.

The above discussion clearly shows how intricate are the processes which have produced the observable archaeological record in one part of Weardale. Destruction, preservation and recovery factors are inextricably linked.

If one considers Fig. I:7, a generalised map for the whole of County Durham and Tyne and Wear (after Clack and Gosling, 1976, Fig 11) it can be seen that some of the problems discussed above, especially those of destruction, are magnified further down the river.

The Central Durham area, including the middle Wear Valley, has suffered severely from both open cast and deep mining for coal. Open cast mining like the quarrying observed in the dale destroys whole areas of land completely from an archaeological point of view. The process of deep mining for coal while not as immediately destructive as the open cast method, does necessitate vast areas being turned over to spoil heaps and also requires much pit-head and ancillary equipment with resultant land encroachment. As Clack and Gosling have pointed out (1976, 75) the tips themselves are not the only source of destruction of archaeological sites, even the act of land reclamation has the effect of spreading the refuse over a wider section of the landscape thus "increasing the archaeologically sterile area".

From the middle Wear section to the mouth of the river, recent human settlement activity has played a growing role in the destruction of archaeological sites. From this middle section, downstream, as Fig. I:7 shows, we have some of the largest built up areas in the region. Sunderland, at the mouth of the river, is a case in point. The early expansion of this town probably destroyed many sites without record (see section on Burial Sites, Chapter VIII, for example). It should be obvious at once that what evidence remains in the archaeological record for the valley may well represent a heavily biased distribution and the picture we have from surviving evidence is a selectively drawn one.

It was precisely this problem of selectivity which prompted Taylor to divide the prehistoric landscape nationally into zones of "survival" and "destruction" (1972, 109-110). He believed that the magnitude of each is such that the overall pattern is so distorted that it is impossible to talk about prehistoric "settlement patterns" in a meaningful way. While the present writer takes Taylor's point, he believes it to be unduly pessimistic and hopes that the present survey will show that the division is not as simple as Taylor would have it, with destruction and preservation as outlined briefly above taking place in both "lowland" and "highland" areas at differing rates. Nor does the present writer believe that Taylor is totally correct in his assumption about the invalidity of looking for "patterns" in prehistoric site and artefact distribution which can be explained in human terms. As Bradley has said (1978, 3) "The way forward is perhaps to consider each area in relation to its potential for field survey and to weight all distributions accordingly". Thus by bearing in mind all the problems that are inherent in the observed archaeological distributions when discussing this material it is hoped that something constructive can still emerge from area studies such as this one.

There are also problems and limitations associated with other facets of the evidence used in this study, namely the environmental data. These will be dealt with in due course (Chapter II).

So much for introductory remarks. Realising that this "is a long pre-amble to a tale" in conclusion I would only echo the sentiments expressed in the quotation at the beginning of this work. If it be judged that my discussion of the evidence proves that "I know absolutely nothing about it", then it is hoped that at least the raw data will stand on its own and provide a base for future work in the area.

CHAPTER II

A CONTEXT FOR THE ARCHAEOLOGICAL DATA

(i) Topography, relief and modern land use (Fig. II:1)

As shown above (p.24) the Wear Valley is a little known area, and there may be much truth in Hildyard's reasons for this (Fell and Hildyard, 1953, 99). However, Leland, writing in 1534-1545 in his Itinerary seems to have had a good idea of the topography and geology of Weardale at least,

"The ryver Were rises at eight miles above Stanhope or more and though the upper part of Weredale be not very fertile in corne yet ys there very fine gresse in the dale selfe where the ryver passith. The very hede of Were risith of two small waters, Burnhop and Kelope; Burnhop cummith by South and Kelope by North, they two joining make Were. Ther cummith also Welopbek in by Kelhope ...." (Toulmin-Smith, 1907, Pt. 1, 71).

The head of the dale rests on Burnhope Seat (NY 785 375) and Killhope Law (NY 819 449) with the great Cross Fell just behind it (NY 744 362) and the main tributaries on the south side of the dale are the Ireshope, Harthope, Daddry, Swinhope, Westernhope and Horsley Burns. Those from the north include the Middlehope, Yellock, Rookhope, Stanhope and Shittlehope Burns while below Frosterley on the south side of the valley (NZ 029 369) the Bollihope Burn joins the main stream and at Wolsingham (NZ 076 373),on the north side,the Waskerley Beck makes its contribution to the Wear.

In all the dale falls some 600 ft. (approximately 185 m) between Wearhead (NY 857 396) and Wolsingham and the asymmetrical deposition of glacial drift in the valley has meant that the northern slopes are much straighter than the irregular hummocky topography on the south side of the river. Maling (1955) has done much work on mapping the extent of a complex series of river terraces in the whole of the river valley.

The main characteristics of the land use patterns in the dale were given by Egglestone (1886, 40), "We find along the margin of the river Wear excellent meadow land, on the brow of the hills we have summer pasturage for cattle and on the moors or mountain tops extensive heather clad sheep walks .... There is some tillage about Stanhope and Eastgate to Westgate but the largest portion of cultivated land is meadow".

When Weardale is compared with Teesdale to the south the latter is broader and due to the presence of the Whin Sill rock, more topographically varied. It is a better channel of communication from east to west (or vice versa) across the country being a more direct route to Alston and Carlisle. Weardale, as Hildyard pointed out, cannot be so viewed, "for if the traveller surmounts the heights at the head of the valley, he is confronted by a second range and has to negotiate Hartside and Cross Fell before reaching the Western Plains" (Fell and Hildyard, 1953, 99).

Middle and Lower Wear

From Bishop Auckland the river Wear flows northwards through gently undulating topography to the Farnley incised meander (NZ 284 496). Meanders such as this one are the major features of the valley in this stretch, occupying as they do the deeply incised gorges between Chester-le-Street and Bishop Auckland. The gorges and meanders occur in four sections of the river, separated by stretches where the valley is straight and has a broad flood plain. Some of the tributaries in this section exhibit similar features, the major reason for this being the instability of the drift material through which the river is cutting and the ensuing land slips (c.f. the broad flood plains at High Houghall (NZ 284 392), and Kepier (NZ 285 435). Between Farnley and Newfield (NZ 206 336) the river has excavated a fine, steep gorge and two terraces occur at 200-210 ft. (62-64 m approximately) between Newfield and Rough Lea (NZ 195 337). Four similar incised meanders are known from Buttersby (NZ 276 394), Durham City (NZ 274 422), Harbour House (NZ 283 483) and Hylton (NZ 354 567) near Sunderland.

The major tributaries on the north side of the river, between Bishop Auckland and Durham are Stockley Beck, entering below Brancepeth (NZ 224 377) and the rivers Derwent and Browney entering below Sunderland Bridge (NZ 266 386). On the south side the major tributaries are the Gaunless which joins the main river at Bishop Auckland and the Croxdale and Old Durham Becks.

This area is one of high urbanisation and much housing and industrial development as well as mining has taken place. In the middle Wear dairy cattle are almost universal and conditions allow some arable farming, while in the lower Wear Valley with its more dense population agriculture becomes more mixed and intensive. Industry has gradually encroached on farming land and the banks of the Wear bear the scars of this expansion in the form of pit gear and waste heaps. Most of the arable farms occur on the eastern slope of the Magnesian Limestone escarpment which is an area of undulating topography standing at its highest at about 500 ft. (approximately 154 m) along its western edge overlooking the Wear and sloping gently to about 50 ft. (approximately 13 m) at the coast.

(ii) <u>Geological Development</u> (Fig. II:2).

In recent years much important work has been done on the geology of north-eastern England (i.e. Johnson, 1970, 1970a; HMSO, 1971; Smith and Francis, 1967). It is proposed to give only a brief outline of solid and drift geology and soil cover here.

Solid Geology

Briefly, the solid geology of the whole county consists of a succession from west to east of Carboniferous, Permian and Triassic rocks which all dip gently to the east.

Weardale

Weardale is an area of carboniferous strata which can be sub-divided for study along the lines of the table below.

LOCAL MILLSTONE GRIT	(after Dunham 1948, 7).
CARBONIFEROUS SERIES	UPPER LIMESTONE GROUP
	MIDDLE LIMESTONE GROUP
	LOWER LIMESTONE GROUP
	BASEMENT GROUP

In the dale, none of the rock below Dunham's "Middle Limestone Group" outcrops. This material is also known as the Yoredale (Uredale) sequence and the "Great Limestone" which consists of the Upper Limestone Group and the Millstone Grit overlie these deposits. The average thickness of this material is about 20 m and it is one of the most prominent and easily recognised horizons in the geology of northern England, outcroping on both sides of Weardale, in the form of definite rock "benches" and being extensively quarried in the area.

The Whin Sill rock forms the most striking series of exposures of igneous material in northern England. The main Whin Sill is known from boring and mine records, and outcrops at Copt

Hill (NY 854 409) near Wearhead in the Burtreeford Disturbance, while the Little Whin Sill lies above the main sill and outcrops between Eastgate and Stanhope (Johnson, 1970, 18 and 1970a, 19). Petrologically this rock is a quartz dolerite and mineralisation has been widespread accounting for the proliferation of veins of lead, zinc and fluorspar which have radically affected the geography of the area.

The Middle and Lower Wear

The geology of this area is that of the Upper Carboniferous series of coal measure rocks, overlying the Millstone Grit and other rock sequences of Weardale, and being divided into two broad areas often termed the "exposed coalfield" and the "concealed coalfield". The exposed area underlies the foothills of the Pennines and the Tyne-Wear lowlands.

Permian rocks which overlie the "concealed coalfield" out-crop to the east and south of the middle Wear Valley and the lower Wear, though it is only at Sunderland (NZ 385 575), where the Wear cuts through the East Durham Plateau to debouch into the sea, that the river encounters these strata. Yellow sands, brecchias, marl slates and magnesian limestone make up the Plateau though the lime-stone is almost wholly concealed by drift deposits, outcroping only rarely along the escarpment which overlooks the Wear. Stream action has severely dissected the Plateau in this area leaving spur like extensions of the limestone jutting out into the Wear Lowlands. Limestone also outcrops along the coast at the base of the gentle dip slope of the Plateau, forming sheer cliffs.

The Effect of Glaciation - Drift Geology and Geomorphology

Quaternary glaciation was very active in the north of England though there is still confusion as to how many times the area was affected by glaciers. At one extreme, Woolacott (1921, 60-69) suggested four periods of glaciation, while Carruthers (1953) saw only one for the whole of the north of England. Beaumont, however, (1968 and 1970, 35) points out that most workers have identified two periods of glacial activity, though again there is much argument as to each phase's complexity. All workers do agree, though, that County Durham was an area in which glaciers from at least five directions met and mingled, from:-

(a) Scandinavia

(b) Lake District

(c) Southern Uplands

(d) Cheviots

(e) Local Pennine glaciers

(i.e. Beaumont, 1970, 35; Maling, 1955, 74-75).

The two major effects of glaciation which are relevant in this context are (a) glacial deposition and (b) the cutting of glacial melt water channels. Both have affected the topography of the area.

(a) The drift cover in County Durham is very thick and irregular in the east of the region and covers the valley bottoms and interfluve slopes in the west. Johnson (1970, 140-149) and Beaumont (1970, 36-37) give a very valuable account of the drift coverage of the county as a whole and Maling's masterly survey (1955) provides abundant information for Weardale and the middle Wear to Chester-le-Street.

Weardale

Atkinson (1968, 27) has pointed out that there is no evidence for multiple glaciation in upper Weardale and Maling (1955, 63) has postulated that the dale was glaciated down to around Witton-le-Wear (NZ 146 313) (the westernmost place where exotic ice penetrated the Wear Valley) by a local glacier. Foreign erratic material is absent in the dale and the main drift cover in the area is confined asymmetrically to the valley floor (Maling, 1955, 63). The tributaries also have their principle drift exposures restricted to one side, generally west of the present stream.

True boulder clay in Weardale has only been identified on the south side between Ireshopeburn (NY 867 387) and Langdon Beck (NY 845 350) at 1790 ft. O.D. (551 m approximately). In general, boulder clay does not occur above 2000 ft. O.D. (615 m approximately) and apart from a few sand hills to the north-west of Wolsingham, all the sand and gravel deposits can be related to Post-Glacial terrace development. Fluvio-glacial sands and gravels occur for the first time in the dale area in the valley of the Bedburn Beck.

<u>The Middle and Lower Wear</u>

The whole of this area was covered by ice, thus rendering the drift more difficult to interpret though on erratic evidence the middle Wear was dominated by ice from the north-west. Around Bishop Auckland, fluvio glacial sands and gravels become more important with an almost continuous exposure of sands in the main valley. From the present confluence of the River Browney, near Durham, an almost continuous line of sand hills and gravel deposits stretches to Ravensworth (NZ 233 586) in the north and similar, but less continuous, hills are visible on the east side of the river between Shincliffe (NZ 292 407) and Pittington (NZ 325 449). All are around 320-330 ft. O.D. (98-101 m approximately).

In the middle and lower Wear area below Bishop Auckland lacustrinally deposited, laminated clays occur. In general, the drift cover varies in thickness, with the thickest deposits occurring in the coastal hinterland area between Hawthorne (NZ 420 455) and Hart (NZ 470 350). Smith and Francis (1967) have surveyed the southern half of this region in detail.

The Scandinavian ice sheet seems unlikely to have penetrated further than the present coast line and the "Scandinavian Drift" is overlain by later deposits from the Cheviots, the Scottish Southern Uplands and the north west. Again the succession is one of gravels, clays and sands.

(b) Maling (1955, 114-121) devotes much discussion to the consequences of glacial retreat and the cutting of glacial meltwater and overflow channels: In short, the escaping water from the "Wear Lake", impounded by the Permian escarpment and the melting ice, cut the important gap through the escarpment at Ferryhill (NZ 290 325) while later a lower gap was excavated at Chester-le-Street (NZ 273 512). The drainage was diverted to the latter exit point and a gorge, through which the Wear still flows, was cut to the sea at Sunderland.

After the final retreat of the ice, stream incision and deposition began in all areas. This proceeded at different rates as the river developed its present course.

<u>Soils</u> (Fig. II:3)

Stevens and Atkinson give a summary of previous work done on mapping soil types in Durham (1970, 46), distinguishing six major factors governing the process of soil formation and concluding that "regional and areal contrasts in the soil pattern of the county reflect the varying regional effect of these factors".

<u>Weardale</u>

Pedological development in the dale has taken place against a background of lithological variability and locally derived parent drift material. Above the maximum altitude of glacial deposition in this area the Carboniferous rocks are important in influencing the sedentary soils that have developed and in the glaciated areas, complex local soil variability prevails. In the recent past man himself has exerted vast influence over pedogenesis in the dale through mining activities (Dunham, 1948 and Raistrick and Jennings, 1965).

The high ground in the area supports extensive blanket peat coverage which began to form in Atlantic times (see Fig. II:4 and pages 49-50 below). This peat cover extends over a varied spectrum of land surfaces and deposits ranging from coarse sandstones to clay loam slope deposits. On the heavy glacial tills and slope deposits, the peat gives way to poorly drained peaty-Gley soils which are visible on both the north and south sides of the dale and which in turn give way around 1340 ft. O.D. (413 m approximately) to surface water Gley soils (Stevens and Atkinson, 1970, 50).

Freely draining soils occur in areas of the dale with sandstone outcrops and with slope deposits containing a high sandstone content. Soils of Podsol and Brown Earth type occur in these areas, with the Podsols, and the calluna heather heaths that they support, occuring at a higher altitude than the Brown Earths.

Low base status Brown Earth soils occur at lower altitudes on sandy loam - loam deposits, and the drift free areas of Carboniferous rock support some Rendzina and Brown calcareous soils. Alluvial soils occur in the valley bottoms and on the river terraces. Atkinson discusses the soils of the dale in great detail (1968).

The Middle and Lower Wear

As we have seen this is an area of varied relief, drained by the major tributaries Browney and Derwent. On the Carboniferous derived tills and in areas with good drainage, low base status Brown Earths occur which are among the best agricultural soils in the area. Surface water Gleys occur in areas with slight drainage or on heavier Carboniferous till.

Soils in this lower area seem closely related to vegetation cover,and dense woodland has dominated lowland Durham giving rise to forest or low base status Brown Earth type soils (Willimot and Gilchrist-Shirlaw, 1960). However in the Derwent Valley area, with its coniferous tree cover, humus-iron Podsols occur. Light textured, well drained alluvial material, derived from fluvio-glacial sands and gravels occurs along the valley bottoms (Stevens and Atkinson, 1970, 52). On the higher knolls of the East Durham Plateau, where drift cover is thin, stable limestone soils have formed. Rendzinas and high base status Brown Earths also occur on the Plateau (Stevens and Atkinson, 1970, 52).

(iii) Vegetational History (Fig. II:4)

The lack of detailed palynological work in the study area makes an in-depth discussion of the vegetational history of the valley a difficult task. Three sites have been sampled in the river's upper reaches; Rookhope Head (NY 885 453 approximately) (Rendell, 1971), Bollihope Common (NY 980 358) and Stewart Shield Meadow (NY 984 438) (Roberts *et al.*, 1973, 207-223), and one in the middle Wear area at Hallowell Moss (NZ 251 439) (Donaldson and Turner, 1977). As a result, what is presented below is a picture of the vegetational development of the whole of County Durham in the hope that a generalised scheme of events may emerge which may have relevance to the valley. The evidence from the pollen diagrams available for the study area would suggest that this is a valid approach - it can be correlated with the data from the other sites, thus giving some indication as to the usefulness of our overall generalisations.

Problems with the interpretation of pollen diagrams and possible sources of error have been outlined by Tauber (1965, 1-69) and Bartley (1976, 226-236) among others, and it is not proposed to deal with these in detail here. However, one problem, highlighted most recently by Bartley (1976, 226) does deserve further comment, and this is the difficulty in deciding whether the diagrams under study represent developments of a regional or purely local basis. Actual bog size may have a great bearing on this, as Bartley has indicated, "In forested areas small bogs yield pollen diagrams which reflect very local pollen changes while large bogs reflect regional changes".

The implications of this for what follows should be clearly appreciated. At one level we are dealing with relatively small bog sites such as Bollihope Common and Steward Shield Meadow, 40 m x 25 m and 60 m x 15 m respectively (Roberts et al., 1973, 207 and 208) which arguably reflect a highly localised picture of vegetational history. At another level we are dealing with information derived from larger deposits like Morden Carr (NZ 321 253) over 2.5 km across (Bartley et al., 1976, 441) and the extensive blanket peat at Rookhope Head (Rendell, 1971, 1), which may well provide evidence for vegetational change on a more regionalised scale.

No information is available for the nature of the vegetation cover before the middle of the Last Interglacial (Ipswichian) period (Turner, 1970, 124). Our discussion begins with the Late Glacial and the location of sites mentioned in the discussion can be seen on Fig. II:4.

Late Glacial Period (up to about 8350 BC)

Lowlands

Four sites in the county have produced data for this period, Romaldkirk (?NY 995 221), Neasham (NZ 332 166), Cranberry Moss (NZ 23 54) and Thorpe Bulmer (NZ 245 354) and all show a remarkably uniform picture (Turner, 1970, 124-128; Kershaw, 1967; and Bartley et al., 1976, 459-61). In the Allerød period the vegetation was dominated by juniper scrub with much grass and sedge pollen in evidence, but by the Late Devensian III period, the final cold spell of the Late Glacial, there seems to have been a change to a herbaceous flora,rich in ferns. This in turn seems to have led to a typical sedge tundra.

Thus, by the end of the Late Glacial period the lowlands exhibit an open birch/park tundra - park tundra environment which is broadly similar to other sites in the north of England, i.e. Bamburgh (Bartley, 1966, 141-151) and Tadcaster (Bartley, 1962, 281 and 283-286). On this basis there seems little reason to doubt that the area taken in by the drainage system of the middle and lower Wear had a comparable vegetation cover.

Uplands

Evidence from the uplands is slight and Chambers has suggested that after the Allerød oscillation upland climate was very severe (1974, 88). However, interpretations of diagrams from sites in the Cow Green Reservoir Basin, in Teesdale, would seem to suggest that the vegetation cover was generally herbaceous with some birch and willow in evidence (Turner et al., 1973, 397-398). This indicates a similar situation in western County Durham to that which prevailed in other areas of the upland north (i.e. Evans, 1970 ; Pennington, 1964, 205-244).

Post Glacial

LOWLANDS

Work by Donaldson and Turner at Hallowell Moss in the middle

Wear Valley (1977) and Bartley *et al.* (1976) in the south and east of Durham has done much to document the changeover from Late Glacial to Post Glacial climatic and vegetational conditions. They have also contributed much to our understanding of the effect of man on his environment from this period onwards.

Pre-Boreal - Boreal Periods (c. 8350 BC - 5050 BC)

The lowlands of County Durham seem to have been dominated initially by birch forest which in its turn gave way to a mixed oak, elm, birch and hazel cover (see Bartley *et al.*,1976, 461-462). However pine may have been growing preferentially on the limestone of the East Durham Plateau and around Bishop Middleham (NZ 324 304) and Morden (Bartley *et al.*, 1976, 462).

Atlantic (c. 5050 BC - 3050 BC)

There is widespread agreement that in this period, which is also known as the "Climatic Optimum" temperatures were higher and rainfall slightly heavier than in the preceding period. An increase in alder pollen at Morden at this time suggests that in south-west Durham, at least, alder became well established in low,wet,areas (Bartley *et al.*, 1976, 462). Prior to the elm decline in the lowlands it seems that the mixed oak forest cover developed and became fairly closed, with gaps only in marshy, wet areas (Bartley *et al.*, 1976, 462).

UPLANDS

Johnson and Dunham (1963, 143-147) and Chambers (1974, 96-97) suggest that in Upper Teesdale around Cow Green (NY 815 308) and the Moor House Nature Reserve (NY 757 327),the woodland remained relatively open throughout the whole of the Post Glacial period. Indeed, Chambers believes that pre-elm decline the vegetation must be seen as "a mosaic of woods, areas of peat and grassland".

The upper limit of closed forest in Teesdale,and by extrapolation,the west of County Durham in general, has proved difficult to estimate due to the superabundance of seemingly local pollen in many diagrams. Squires (1971, 43) has suggested an upper limit of 1200 ft. O.D. (365 m) though it must be stressed that there was probably considerable local variation in the amount of woodland present (see for example Squires, 1970, 174-184).

The full spread of woodland has been C^{14} dated to 4252±70 bc (6202±70 bp SRR 107) in the vicinity of Wheelhead Moss (NY 807 304), 2,800 years later than the maximum spread in the lowlands (Chambers, 1974, 97-98).

Pre-Boreal - Boreal (c. 8350 BC - 5050 BC)

Turner (1970, 128) briefly documents the spread of hazel, elm, oak and pine into the uplands and also points out that pine was a late arrival in areas above 1750 ft. O.D. (540 m approximately), not occurring before the Mid-Late Boreal period, though pine does seem to be the dominant tree species in the uplands in this period. Perhaps the major point which should be stressed is that tree cover in general probably varied considerably over short distances, giving rise to a rich variety of available habitats (Chambers, 1974, 97).

Atlantic (5050 - 3050 BC)

During this period in the uplands deciduous forest continued to develop and as a result of increased wetness alder proliferated. On the high fells blanket peat also began to form over large areas and Johnson and Dunham (1963, 136-140) have recorded peat up to 12 ft. thick (3.8 m approximately) which began to form at this time on the slopes of Moor House. Indeed, as Turner points out (1970, 130), there can be little doubt that large areas of Boreal forest were replaced, not by the Atlantic forest, but by peat forming communities at this time. The lower slopes were not affected by peat growth until the end of the

Atlantic period and continued to support forest cover.

Rendell's work at Rookhope Head in Upper Weardale (1971) though not C^{14} dated, would seem to indicate peat forming around 4100 BC (Rendell, 1971, 27) which would compare favourably with the results of work carried out by Johnson and Dunham (noted above) and Conway (1954) and Tallis (1964) in the Southern Pennines. At the present time in the dale, blanket peat is extensive above 1500 ft. O.D. (460 m approximately) with the main areas which show a continuous peat development from Atlantic times following the high interfluves encompassing the main river valley and the Rookhope Burn. Here the peat is about 6 ft. thick (approximately 2 m) but a maximum thickness of 8 ft. 6 in. (2.6 m approximately) has been recorded just south of Killhope Law (NY 819 449) (Atkinson, 1968, 104-105).

In the highlands then, prior to the Atlantic - Sub Boreal transition as indicated by the elm decline, we have a picture of a more open environment than in the lowlands, with an upper limit to the closed forest above which was probably more open, scrub type, land - what Professor Simmons (pers. comm.) has called the "tonsure" effect.

The Effect of Mesolithic Man on the Vegetation

Little direct evidence for this exists in County Durham as a whole. At Valley Bog on the Moor House Nature Reserve (NY 764 327) Chambers records an unsteady, temporary, decrease in elm (Ulmus) pollen accompanied by a slight increase of herb, Rosaceae, Umbelliferae, Filipendula and Cruciferae pollen and also a peak of hazel (Corylus) (Chambers, 1974, Figure 19, 20 and 21, 71-73). He argues that this type of change could only have been brought about by anthropogenic activity in the area, evidence for which comes from Mesolithic flint and chert material found on the Reserve at some six locations. Two radio-carbon dates, 4000±60 bc (5950±60 bp, SRR 92) and 3995±50 bc (5945±50 bp, SRR 93) are associated with this vegetational disturbance (Chambers, 1974, 82) and these would tie in well with the idea of a late Mesolithic interference with the vegetation cover.

A similar peak of hazel (Corylus) was noted by Walker at Stump Cross near Grassington in Yorkshire (1956), in association with Mesolithic material and traces of herb pollen which Walker attributed to human agencies. Smith (1970, 82-83 and 87) has also suggested that Mesolithic man was instrumental in the spread of hazel (Corylus) in the Boreal period. The Valley Bog data may then be evidence for a temporary, human induced, clearance in the uplands.

Further pollen evidence for possible pre-elm decline interference with the woodland may come from an unpublished diagram from Fox Earth Gill (NY 842 782) also in Teesdale (Squires, 1970, 130).

The Elm Decline

With the Atlantic - Sub Boreal transition the vegetational history of the area is further complicated by the presence of man. From this period onwards many of the changes in the vegetation are at least in part attributable to human agency.

A rapid decline in elm pollen is one of the main features on pollen diagrams of the Atlantic - Sub Boreal transition and this phenomenon has caused much detailed discussion as to its nature over the last thirty years or so (see Iversen, 1949, 1960; Troels-Smith, 1953, 1955, 1960; Godwin, 1956, 1959, 1965; Mitchell, 1956, 1965; Smith, 1961, 1965, 1970; Frenzel, 1966; Evans, 1975 and many others). Here though is not the place for a full discussion of the elm decline. Suffice it to say that though not proven conclusively the anthropogenic explanation might be preferred.

Evans (1975, 109) points to the contemporary use of elm leaves as fodder by primitive peoples and to the finding of bunches of elm twigs at the Swiss Lake Village sites in support of this. However, it may still be that "we are dealing with a complex of effects and that in different areas different factors or combinations of factors may have been critical for the vegetation" (Smith, 1970, 90).

The area between the Tees and the Tyne does, however, provide some evidence to suggest that the elm decline was anthropogenic in origin. The date range for the elm decline generally is between 3,850 bc and 2550 bc (5800 bp - 4500 bp) with the average date around 3150 bc (5100 bp) (Bartley et al., 1976, 463). All dates available from lowland Durham come into the earlier part of this range, i.e.:

Neasham Fen 3518±80 bc (5468±80 bp SRR 102)(Bartley et al., 1976, 439)
Morden Carr 3355±55 bc (5305±55 bp SRR 475)(Bartley et al., 1976, 446)
Bishop Middleham pre 3230±110 bc (5180±110 bp GaK 2071)
(Bartley et al., 1976, 449)
Hartlepool Bay, after, 3290±70 bc (5240±70 bp HV 3459) (Tooley, 1978,75).
3265±80 bc (5215±80 bp HV 5217) (Tooley, 1978,75)

At Hallowell Moss, the first radio-carbon dated pollen diagram from the Middle Wear area, the diagram covers the period from 2988±60 bc (4938±60 bp SRR 419) (Donaldson and Turner, 1977, 27) to the present day. At the earliest dated level elm pollen was virtually absent and the authors believed that the elm decline may already have taken place (Donaldson and Turner, 1977, 27).

Dates are later in the uplands. At Wheelhead Moss the elm decline occurs between 3620±110 bc and 3270±120 bc (5770±110 bp GaK 2916 - 5220±120 bp GaK 2915). Chambers prefers the later date as being closer to the elm decline, due to a hiatus in peat development (1974, 98). At Valley Bog the elm decline occurred between 2744±55 bc (4794±55 bp SRR 91) and 2646±60 bc (4596±60 bp. SRR 90) (Chambers, 1974, 99).

Thus, there would seem to be a tendency for the elm decline to be earlier in lowland Durham than in the uplands and Chambers and other workers (Bartley et al., 1976, 463) connect this with selective anthropogenic influence coming from the east of the area in the form of the spread of a "new culture" from the lowlands into the uplands, possibly due to population pressure in the lowland areas. As Chambers points out (1974, 99), "if a fall in temperature or leaching of base rich soils were the cause one would expect the dates to be in reverse order". Chambers has also suggested that the time difference between uplands and lowlands for the elm decline may be explained by a lag in an indigenous development of new food collecting techniques among a more or less sedentary population (1974, 99). Both these ideas may have important ramifications when we come to discuss land use patterns in Weardale (see Chapter X).

Post Elm Decline (Sub Boreal and Sub Atlantic periods) (c. 5000 BP

Post elm decline the importance of most pollen diagrams hinges on what they reveal about the history of forest clearance and agriculture. This is observed through the use of "cultural pollen grains" such as those of Plantago Lanceolata and Rumex Acetossella for pasture and Plantago media major and cereal for arable. Again however we must enter a caveat here. The same problem occurs with forest clearance as a whole as we have with the elm decline. Can it be truly said to be a result of man affecting the landscape or is the decline in tree pollen a reflection of climatic or other conditions?

Waatringe has warned against the use of "cultural pollen grains" as evidence of cultivation or any form of human interference with the environment (1967, 294). She believes that Plantain may have survived as part of the glacial relict flora in coastal districts and the northern uplands. Thus its first appearance in isolation in the later pollen record should not be taken as an automatic indication of cultivation even though it subsequently was most frequently associated with man's activity. She also points out that in "unstable boundary zones" - areas at the interface between two ecotones, i.e. fresh and salt water - Plantago pollen could occur without the activities of man. These boundary or contact zones, according to Westhoff and Van Leeuwen (1966) were, presumably, the natural pastures of wild grazing animals. Selective grazing, compaction of the soil through trampling, soil enrichment by manuring on these natural pastures (which would have been available only along the sea coast and in river valleys where the development of forest was hindered by "unstable milieu factors" which are the common features of these contact zones), may be mistaken for the effects of man (1967, 294). With these points in mind we must now try and interpret the evidence we have from pollen analysis.

Lowlands

In the lowlands of the east Bartley et al. (1976, 463) would argue for small clearances by Neolithic man from around 3,200 bc on just the evidence under discussion above. For example at Bishop Middleham (NZ 324 304). P. Lanceolata makes its first appearance around 3230±110 bc (5180±110 bp GaK 2071) and is accompanied by Rumex acetosella and Cruciferae pollen types (Bartley et al., 1976, 449). Hallowell Moss in the middle Wear Valley, however, shows no evidence for Neolithic interference with the tree cover as the peat sequence seems to start at a later date. The lack of cereal pollen associated with these small scale clearances has led some workers to suggest that the anthropogenic activity was linked solely with pastoral rather than arable activity. More will be said about this in Chapter X (below) when the archaeological and environmental data are discussed together. Suffice it to say here that evidence exists which may challenge this hypothesis.

Around 1710±80 bc (3660±80 bp GaK 2072) at Bishop Middleham and 1540±80 bc (3544±80 bp SRR 601) at Hutton Henry (NZ 41 35), both on the limestone, increases in grass and herb pollen and a single occurrence of cereal pollen at Hutton Henry,all at the expense of boreal pollen,mark the beginnings of significant clearance and possibly more permanent settlement on the Plateau. P. media major, Artemisia and Chenopodiaceae pollen are thought to suggest arable agriculture (Bartley et al., 1976, 463-466).

The presence of cereal pollen at Bishop Middleham and Neasham in a Middle Bronze Age context would suggest a spread of arable farming by this time,but what is really striking is the evidence for differential clearance in the east in this period. Off the limestone, clearance seems to have been slight,but on the Plateau itself forest clearance seems to have been fairly extensive. As a result, Bartley et al. (1976, 464) postulate a massive clearance of the East Durham Plateau and possibly the adjoining sands and gravels and would parallel this with contemporary clearance on the chalk in the south-east and with evidence from Cumbria. They believe that after initial clearance, the area never again had forest cover.

At Hallowell Moss there is an Early Bronze Age clearance, with an increase in P. Lanceolata,the light demanding ash and holly, and ivy which are species inhabiting clearances. Donaldson and Turner would see this as a result of grazing and coppicing of hazel which also increases. A decrease in lime pollen at this Middle Wear Valley site may also be attributed to anthropogenic activity in this period (Donaldson and Turner, 1977, 28).

Uplands

In the uplands, fluctuations of herb pollen frequencies on the Cow Green and Widdybank Fell diagrams suggest that here, as in the lowlands, small temporary clearances were made during the Neolithic and Early Bronze Age periods (Chambers, 1974, 101). Elm never seems to regenerate in Upper Teesdale, at least, and at Wheelhead Moss, at a level dated to 1200±100 bc (3150±100 bp GaK 2913), there was a massive opening up of the tree cover. Valley Bog shows a similar clearance and it is clear that by the Middle Bronze Age substantial areas of woodland had been cleared in all parts of Teesdale (Chambers, 1974, 101).

Rendell's undated diagram from Rookhope Head shows two elm declines (1971, 29-30). The first he placed at the start of the Atlantic - Sub Boreal transition around 3000 BC and was accompanied by an increase in oak, ash and herb pollen. Rendell argued for the anthropogenic origins of this phase because of its short duration. At 304 cms on the pollen diagram a second elm decline occurs, accompanied by a decrease in oak, and hazel and an increase in birch, ash, herb and grass pollen. Rendell believed that this represented the recovery stages after a temporary "landnam" clearance. It is possible that this is a Late Neolithic/Early Bronze Age clearance (Rendell, 1971, 30). The partial recovery of the forest after this episode is put down to Bronze Age activity which saw cereal pollen make its first appearance along with *Plantago*, herb and weed pollen (Rendell, 1971, 31).

Thus, the picture in Upper Weardale may be similar to that across the watershed in Teesdale in the Neolithic and Bronze Age periods. Cereal pollen, however, is sparse in all the Teesdale diagrams with evidence for Bronze Age clearance. Chambers (1974, 102-3) and other workers would see this as reflecting an emphasis on pastoralism in agreement with Turner's suggestion (1970a, 100) that the Bronze Age may have seen only an extension and intensification of a basically "Neolithic" way of life. However, it is hoped that in the discussion below (see Chapter X) this emphasis will appear to be more apparent than real.

1st Millennium BC

From this time on, man's effects on the vegetational history of County Durham is quite pronounced. All the sites involved show definite evidence for clearance, both in the lowlands and the uplands.

Lowlands

Hallowell Moss has the earliest dated evidence for Iron Age activity, around 422-542 bc (2432±60 bp SRR 417) when there was a slight opening of the forest which allowed grass and herb pollen to increase to 10% of the total tree pollen. In the absence of cereal pollen this episode was seen as merely an extension of the pastoralism which was supposed to have been the dominant economic mode in preceding periods. Later towards the end of the Pre-Roman Iron Age there was another very small clearance phase at this site (Donaldson and Turner, 1977, 28). Several other lowland sites document Late Iron Age clearance activity.

At Thorpe Bulmer, around 130-140 bc (2064±60 bp SRR 404) there is a massive grass, herb and weed pollen increase with all tree pollen except alder decreasing drastically. Cereal and cannabis pollen (the earliest occurrence in Britain of this plant so far recorded) in large amounts, indicates a considerable spread of cultivation in the region and with it possibly an expansion of more stable settlement. Similar evidence comes from Hutton Henry (Bartley *et al.*, 1976, 465-466).

By the Roman period proper the lowlands were probably as open as they are today. At Hallowell Moss tree pollen accounts for less than 5% of the total pollen and a large clearance, with ensuing good land management, takes place. Donaldson and Turner (1977, 28) believe that there was much pasture and meadowland but still very little arable in this part of the Middle Wear Valley. Cereal pollen does in fact make its first appearance at this time at the site, but grass pollen (which was 512% of the total tree pollen) and buttercup, daisy and sorrel pollen all would seem to support a strong emphasis on pasturing.

Uplands

In the western part of our area there is evidence for similar large scale clearances by the Late Iron Age. At Valley Bog (Chambers, 1974, 103) an increase in grass and herb pollen is dated between 225±45 bc (2175±45 bp SRR 89) and 262±55 bc (2212±55 bp SRR 88), and this is regarded as a larger clearance than any previous one in this part of Teesdale and seems to be synchronous with other Iron Age clearances in the north of England (i.e. Hicks, 1971).

In Weardale itself there is evidence for Iron Age/Romano-British clearance and activity at two sites, Steward Shield Meadow and Bollihope, on the north and south sides of the river respectively. At both sites, between 200 bc and 300 ad the tree pollen decreases sharply.

At Steward Shield Meadow around 110±100 bc (840±100 bp GaK 3/032) tree pollen decreases and open conditions ensue with an increase in grass and heathland and some cereal cultivation. The carbon-fourteen dates indicate open conditions in the area for over 1000 years but Roberts et al. (1973, 217) would query this in the light of a possible hiatus in peat development at the site.

On Bollihope Common at around 220$\pm$100 ad (1730$\pm$100 bp GaK 3/031) there was a clearance of local pine woods and the overall picture is similar to that at Steward Shield. "The most interesting evidence from Bollihope ... is the discovery of the remains of a number of huts, both circular and rectangular on the South facing slopes of the main valley of the Bollihope Burn, which by comparison with sites in Northumberland are almost certainly Romano-British in date. There are associated sub-rectangular enclosures, farmyards rather than fields and there is little doubt that the valley was occupied even if seasonally at this time" (Roberts et al., 1973, 217). Further discussion of this area will occur later (Chapter IX).

Roberts would suggest that Bollihope was less cleared of trees and less intensively exploited than Steward Shield. From this he would argue in terms of "galleries of woodland" along the steeper valley sides with clearance taking place on the benches and terraces above the main river (Roberts et al., 1973, 217). Rendell would also suggest an Iron Age/Romano-British clearance at Rookhope with mixed farming ensuing. However, he stresses that pastoralism was the more dominant process in operation - only at two levels at Rookhope does the value of Plantago pollen fall below 65% of the total non tree pollen. This figure must be treated with caution though because the samples at Rookhope were taken at 16 cm intervals (1971, 31-32).

Thus, the overall picture for the region in the Post Glacial period seems to be one of increasing amounts of clearance with time, with available evidence from the Wear Valley falling into line with the general regional pattern of events.

More palynological work is needed for the whole of the region but the present writer believes that, in the light of the artefactual evidence in the Wear Valley for man's presence from the Late Mesolithic period onwards, pollen research in this specific area, particularly in the river's upper reaches would be very rewarding. Indeed, it may be a necessity for a fuller understanding of man's past activities in the area.

CHAPTER III

A HISTORY OF PREVIOUS WORK IN THE WEAR VALLEY AREA

Sporadic archaeological work has been carried out at different times in the past and in different parts of the Wear drainage system. A brief review of some of the major contributions is needed to set the present research in a historical context.

Daniel has said that before 1840, "students of man's prehistoric artefacts ... were mainly antiquarians and art historians, interested as dilettantes in the curious, the beautiful and the old" (1975, 10). This observation can rightly be applied to the whole of the study area until the beginning of the twentieth century, and all the inexact referencing and recording of information and flights of fancy which seem to accompany this phase of archaeological development, dogged the archaeology of the area until then. Indeed, it was not until the 1940s and 1950s and the work of E.J.W. Hildyard in Weardale, that the archaeology of the valley was approached in anything like an organised way.

1852 saw the publication of Longstaffe's paper "Durham Before the Conquest" which was one of the first attempts at an overall synthesis of the state of archaeology in the whole of the county. As such it mentions several sites in Weardale, notably the enigmatic "Castles" site at Hamsterley and the earthworks in Stanhope Park (which he identified as a military camp of Edward III), in addition to major artefact finds from the area such as the Haggate bronze hoard (Longstaffe, 1852, Fig. 1). This paper was not, though, the product of any original field work carried out by the author, but merely the result of his discussion with other antiquarians and his "gleanings" from earlier topographic, descriptive and historical works such as those by Surtees (1916, 1834, 1840), Hutchinson (1794) and Cade (1785 and 1789), (Longstaffe, 1852, 41-96).

The first real statement about the potential of the archaeology of the area, based on original field work, came in 1877 with the publication of Greenwell's "British Barrows". Of Durham generally (and thus by implication the lower parts of the Wear Valley) the Canon wrote,"though it lies between districts which abound in the various remains of pre-Roman times, and though it presents natural features apparently well adapting it for early occupation (it) is strangely deficient as well in the weapons and implements of stone and bronze using people as in the dwelling places of the living and the graves of the dead" (1877, 440).

This dismal appraisal was continued when he turned his attention to the upland dale areas: "the west of the county, consisting of a tract of high land which has never been cultivated, would in other and similarly circumstanced parts of England, have been occupied with the cairns and barrows of the people who once lived there but such monuments are almost entirely, if not altogether lacking on the Durham moorlands" (1877, 440). So much for Greenwell's view of the study area in the 1870s. In 1894 though, in his report on the finds in the Heathery Burn Cave above Stanhope, the redoubtable Canon may well have felt slightly compromised, for here was probably one of the most important finds in British prehistoric archaeology coming from an area which less than twenty years before he had virtually written off as a wilderness! (Greenwell, 1894).

The late 1880s did see one boost to the study of the history and archaeology of at least part of the valley. This came in the form of the work of William Morley Egglestone, a Stanhope shopkeeper and later Inspector of the Weardale Board of Health, who had an active and prolonged interest in all periods of Weardale history. He was a great collector of artefacts, (some of his flint collection was given to

Hildyard in 1946), and he was locally renowned for his books on the dale such as "Stanhope and its Neighbourhood" and "All around Stanhope" (1882 and 1883), "Weardale names of Field and Fell" (1886) and "Picturesque Weardale" (1916), which embraced, in general terms, such subjects as the area's history, archaeology, place names, folk-lore and dialect. He was also instrumental in setting up the (now defunct) "Weardale Naturalists Field Club" and in producing (though only in limited numbers) the "Transactions" of this Society. Throughout the period 1910-1916 Egglestone was actively engaged in publishing a great deal of prehistoric and Roman material from the dale, (Egglestone, 1909-1910, 205-8; 1911-12, 106-7; 1911-12a, 115-117; 1915-16, 9-11, 178-179 and 194-196). With his death in 1921, emphasis on archaeological activity shifted from the uplands to the lower Wear area and the coast.

For the first thirty years or so of the twentieth century this area came to dominate the local archaeological literature as the first detailed field work and constructive interpretation of the archaeological record was carried out here. The first manifestation of this occurred in 1905 with the publication of a paper by C.T. Trechmann on lithic material from the Durham coast (Trechmann, 1905). In this he noted for the first time the tendency of sites on the coast to be located on the edges of the coastal denes, in sheltered locations usually protected on the seaward side by low sand dunes and more importantly, (though he did not really comment on the fact), he recorded for the first time the association of microlithic flint types with typologically later material (Trechmann, 1905, 361-362). Trechmann also noted that flint material occurred less densely on the coast north of Sunderland, and that this may be more an apparent distribution than a real one, being the product of differential coastal weathering and erosion.

While this growing interest in the lowland area was still in embryo stage 1905 also saw the publication of volume one of the Victoria County History for County Durham. While this was not one of the best V.C.H.'s it does present a statement of the general level of archaeological knowledge about the county in the early years of the century. As such, it contains material directly relevant to the valley and is worth discussing now. The section on "Early Man" was written by Greenwell and G. Clinch (V.C.H., 1905, I, 199-211) and among other things it included a discussion of the Heathery Burn Hoard in some detail. Overall though, it simply represents an updating of the views expressed by Greenwell in 1877. The section on "Ancient Earthworks" by I. Chalkley-Gould does however present new information relating to the valley and the upper dale in particular (V.C.H., 1905, I, 343-365). The chapter records several previously unknown sites, dividing the earthworks into eight classes (A-H) with a ninth group (X). Only class B and X concern us here.

Class B consists of earthworks,"on hill tops with artificial defences, following the natural line of the hill or though usually on high ground, less dependent on natural slopes for protection" (V.C.H., 1905, I, 348). Into this grouping he puts the "camp" at Toft Hill (NZ 155 282) (now destroyed), the "Castles" at North Bedburn, Hamsterley (NZ 103 331) and faint traces of a site at Harperley (NZ 120 350) (not now identifiable); all sites in the valley. Class X consisted of,"defensive earthworks which fall under none of these headings" (referring to the other eight) (V.C.H., 1905, I, 349) and in this group he put the sites at Park Pasture (Old Park Farm, Stanhope), (NY 925 385) and Stanhope Park Crag (? a continuation of the Old Park Farm complex) (V.C.H., 1905, I, 362). This was the only publication available dealing with earthwork sites until Hildyard began his field work in Weardale in the 1940s.

Seven years after the V.C.H. appeared, Trechmann produced a paper on "Neolithic Chipping Sites in Durham and Northumberland" and included in this was a discussion of material from both the lower Wear and the dale. While the coastal section is a virtual re-statement of his 1905 paper, even down to the list of sites given (1912, 80), he does record two sites in the uplands. One of these, that at Rookhope in Weardale,had been initially noted by Egglestone (1911-12a, 115-117),while the site at Blackton in Teesdale was a new discovery. For the first time, he provided a discussion of the relative dates of upland and lowland sites concluding that while the material may or may not be contemporary, "there was no inter-course or exchange of materials between the two areas". He suggested that the implements on the fells had found their way there in a finished state from the south,while the coastal implements had been made in situ from flint nodules dug out of the boulder clay and found on the sea shore.

In 1929, Preston published a note on his field work carried out along the banks of the Wear between Durham and the sea coast (1929, 137-141). He recorded six new sites producing flint, four of these being around Finchale Abbey just below Durham, the most prolific being that at Finchale Nab. It was not until 1933-34 that he again ventured into print with his "Microlithic and Other Industries of the Wear Valley" (a paper most notable for its wrong references and mis-information). In the main this was meant to be an updating of his 1929 paper.

Throughout the 1930's much work of direct relevance to this study was carried out. In 1932 F. and G. Coupland excavated a mesolithic site at Whitburn on the coast (Coupland F. and G., unpublished) and continued,throughout the period,to record their observations of lithic material in the area (Coupland G., 1932; Coupland F. and G., 1935).

Raistrick and Westoll published an initial account of their excavations at the prolific coastal site of Crimdon Dene (1933) and this was later amplified by further work by Raistrick and the Couplands (Raistrick et al., 1935). While this site is not directly related to the study area it deserves mention here because it is the only well published account of the excavation of a flint scatter site in the whole county and as such it has been most useful in the present work.

The work of G. Bennett Gibbs (1932) was, however, of direct relevance to the study area. This paper, "Neolithic Man in County Durham", was for its time, an innovatory discussion of the prehistory of the area, as it was the first attempt to link broad environmental and topographical factors with the available archaeological evidence to build up and account for, the observed pattern of prehistoric settlement in the region. He began by assessing the effects of glaciation on the county and moved on to a discussion of flint, paying particular attention to the origin and derivation of this material in Durham and concluded that three mechanisms for its arrival in the county were possible (1932, 15-17). These were:-

(a) by glaciation from Scandinavia

(b) by hand from East Anglia, mentioning in passing the possibility of flint from Yorkshire, and

(c) brought in recent times by ships, as ballast, from the south-east.

This latter method raises an interesting problem as huge heaps of this ballast are known at Monkwearmouth and North and South Shields. Some of it, though, was undoubtedly dumped before ships reached port, and this may cast doubt on the "naturalness" of some of the flint pebbles on the Durham coast. His observations on the environmental determinants of the prehistoric settlement pattern (1932, 22-23), while now proved to be incorrect, do mark a significant departure in discussions of the archaeology of the whole county.

He concluded his paper with an updated list of sites from which flint had been recorded, dividing his inventory into "coastal sites" (32 examples), "sites with easy coastal access" (22 examples), and "sites at a distance from the coast" (20 examples). Of the latter group, three were from the upper dale (1932, 23-27).

More work which was of relevance to the Wear Valley was contained in three papers published in 1933-34. These were Raistrick's "Distribution of Mesolithic sites in the North of England" (1933) and "Mesolithic sites from the North-East coast of England" (1933a) and a joint paper by Raistrick and Bennett Gibbs entitled "Prehistoric Invasions of Northumberland and Durham" (1934).

In the course of the first mentioned paper Raistrick discussed several new Mesolithic sites from the Yorkshire and Durham Pennines and the coast of Durham and Northumberland, and went on to summarise the distribution of such sites over the whole of the north of England (1933, 41). He followed Buckley's (1925) suggestion that the coastal material could be separated into two groups:-

(a) Early Tardenoisian with Belgian affinities, and

(b) Later, developed types, "genetically connected" with the earlier material and not representing a second phase of contact with the Continent.

He further suggested that the "narrow blade" types of the Pennines were not distinguished on the coast (1933, 51), and he also put forward the idea that the coastal and inland sites were the direct result of connections across the North Sea between northern England and Belgium in the form of folk-movement from the Continent. He noted the frequent association of "developed Tardenoisian" material with Neolithic flint, (first recorded by Trechmann, 1905), and postulated for the first time a "telescoping" of cultural development in the north to account for this (1933, 197-198).

"Mesolithic sites from the North-East coast", contained a full discussion and comparison of coastal flint sites in Durham and Northumberland (1933a),and again he argued for a telescoping of cultures to account for the occurrence, in the same assemblages, of barbed and tanged and leaf shaped arrowheads. However, it was in Raistrick and Bennett Gibbs' joint work that Raistrick's "telescoping" theories were fully developed. Throughout this paper the obvious influence of Fox's environmental determinism, as encapsulated in The Personality of Britain (1932), can clearly be seen. The authors firmly believed that,"in any discussion of the first settlement by man, of Northumberland and Durham, account must be taken of the physical conditions of the area at the close of the glacial period, both in respect to climate and the state of the ground" (1934, 187). The main mechanism for cultural change and development was seen as one of invasion and response.

The two believed that sand dune instability, caused by climatic deterioration at the Boreal/Atlantic transition, led to Mesolithic people on the coast moving inland and mixing their culture with the "Neolithic stock" whose way of arrival is,"not yet clear". They saw a similar mixing of the coast sites in the Bronze Age with the appearance of barbed and tanged arrowheads and they tried to plot Bronze Age settlement routes by the distribution of pottery in a chronological sequence of beakers, food vessels and cinerary urns, as Raistrick had tried to do before in 1931 (Raistrick, 1931, 150-152). They concluded that the ceramic distribution showed a close correlation with the flint sites, with the main point of entry into the area being the Wear Valley. (The Tyne they believed was too big and its banks too unattractive for early settlement.) Within the Wear Valley it was argued that as one moved inland along the river, the Tardenoisian element in the flint material decreased with a corresponding rise in Neolithic influence.

One point raised by this paper deserves fuller comment here and that is the ideas expressed on prehistoric chronology in the area. Perhaps it is worth quoting verbatim the relevant section from the paper:- "It seems certain from the work of the last few years that in the north of England, pre-Bronze Age time is marked by a considerable 'telescoping' of cultures, the Tardenoisian being the earliest, becoming well established and receiving, while it is developing itself on local lines, a grafting of the cultures which used to be called with great emphasis the Neolithic. This combined culture receives in turn some of the earlier features of the Bronze Age; though the Bronze Age settlement represents the real revolution, the change over from hunting to agrarian communities and the slightly later change from stone and wood users to metal users with all the complications of continental connections and trade in metal and metal weapons and ornaments. The Iron Age succeeded the Bronze Age in the area at a relatively later date and was in many of its phases contemporary with Roman rule of the North. <u>Thus all our prehistoric cultures tend to arrive late and to be quickly followed by the next succeeding culture wave, producing a degree of overlap and mingling not so evident in the Midlands and the South</u>" (1934, 193-194). This position remained seemingly unquestioned until 1970! (see Harding, 1970, 191).

In 1935 F. and G. Coupland examined six flint sites on the coast in the area around Whitburn, and while much Mesolithic material was recorded, flint types, typologically assignable to the Bronze Age, also occurred. Further flint material from the dale was also published in the same year by A.H. Shorter (1935, 27-31).

The next major input into the archaeology of the valley came three years later from a slightly unexpected source. Steer, in the introduction to his Ph.D. Thesis on <u>Roman Durham</u>, brought together most of the then known Mesolithic and Bronze Age material from the valley and in particular the dale area (1938, 31-33). In the general introductory discussion, although he accepted much of what Raistrick and Bennett Gibbs had put forward earlier, he did at least suggest that the west of the county, and in particular the dale, may not have been the archaeological desert which some workers (e.g. Greenwell), had believed. Unfortunately sixteen years were to elapse before another serious attempt was made to discuss pre-historic settlement in the valley (Fell and Hildyard, 1953).

In the time between 1938 and 1953 two general books on Weardale were written, Graham's "Weardale Past and Present" (1939) and Lee's "Weardale Memories and Traditions" (1950). Both in their own right were interesting volumes, but they did little to advance the study of the prehistory of the area. By far and away the most important year in this period was 1945 which saw the private publication of the first of Edward Hildyard's pamphlets on "The Archaeology of Weardale". These appeared almost annually until 1957 and have proved to be a major source of information for the present writer.

The Hildyards were local landowners who had lived at Horsley Hall, in the dale, for several generations. Edward Hildyard turned his attention to the archaeology of the area after the Second World War and in his own words,"found the region comparatively neglected in this as in all else" (Fell and Hildyard, 1953, 99). As a result, his first care was,"to try and examine, and if possible collect, any past finds that could still be traced to individual hands and to secure them for posterity". This he did with some success.

His field walking activities in the dale were the result of two accidental circumstances. First, in 1946 and 1947, he was engaged in the excavation of a medieval episcopal hunting lodge at Cambokeels, and in the course of this work was surprised to find a large number of flints in the excavated area (Hildyard and Charlton, 1947; Hildyard, 1949a). This led him to examine the spoil heaps of the water pipe line being dug down the valley from Burnhope Reservoir to Sunderland, and again the results showed the presence of flint in some quantity,given the very limited area of disturbed soil.

As a result of this he began an organised and systematic survey of fields under plough in the dale and when the results were finally written up, in conjunction with Clare Fell, in the form of two papers, "Prehistoric Weardale - a new Survey" (1953) and "More Flints from Weardale - a postscript" (1956),he had discovered flint scatters at approximately 36 locations and there was hardly a field between Eastgate and Stanhope where he drew a blank. Hildyard also engaged in excavation work in the dale, as mentioned above, though only one, undertaken on the supposed site of the finding of the Haggate Hoard and unfortunately producing negative results, is relevant to the present survey (Hildyard, 1957, 9-12).

Before he left Weardale for Yorkshire, in 1957, Hildyard had plans to set up a local archaeological society, however support was not forthcoming and the idea came to nothing. With his departure interest in the dale and the valley in general waned to the extent that the attitude prevailed that there was virtually nothing of prehistoric archaeological interest in the area, and that, what there was required too great an effort to record it. This was, in the main, the state of affairs when the present work was begun, though one cannot depart from a discussion of work done in the area in the 1950s and 1960s without reference to Mr. J. Newrick who did much useful field work in the valley in his capacity as the Government's Agricultural Advisory Officer for the area. Mention should also be made of the excavations by Jarrett in 1956 at the promontory fort site of Maiden Castle just outside Durham (Jarrett, 1965) and more importantly the sterling local field work carried out throughout the 1950s, 1960s and into the 1970s by Mr. Wilfred Dodds who until his retirement in 1978 was the Senior Technician in the Department of Archaeology, Durham University. The collection of local prehistoric material in Sunderland Museum owes much to his efforts and donations.

CHAPTER IV

FLINT AND CHERT MATERIAL

It may seem somewhat ironic to the outside observer that the largest body of prehistoric archaeological data available from the Wear Valley should refer to what may be the earliest periods of man's activities in the area. However, this is definitely the case, and flint and other lithic material far outnumbers any other archaeological evidence from the valley. The following chapter is an attempt to give a typological account of this material, in a northern context. In the past the lithic material, most of which comes from surface collection, has simply been recorded and not studied in detail. This is a grave omission on the part of the area's archaeologists and fieldworkers as a detailed study of the assemblages from the north-east in general may yield much information regarding sources of raw material, regional tool typology and site and implement function, and might ultimately allow some tentative suggestions to be put forward concerning prehistoric hunting, gathering and general subsistence patterns (see Chapter X below). Admittedly, an analysis of this data, which includes stray finds and scatters of varying size, is not without its problems, and it is hoped to examine some of these in the following discussion. However the writer believes that the increase in information relating to the prehistory of the valley, which a detailed examination of the lithic material can give, is well worth the effort of trying to understand and discuss these problems.

In terms of the standard typological scheme embodied in such work as that of Clark, (1932) and I.F. Smith (1965, 85-110) which is followed in this discussion, much of the lithic material in the valley seems to date from the Later Mesolithic period, (c. 6,800 b.c. - 3,500 b.c.), onwards. However, claims have been made for evidence for Palaeolithic activity in the valley (Hildyard, 1949, 3) and there is a small amount of evidence for Earlier Mesolithic activity (c. 8,500 b.c. - 6,800 b.c.) in the area. As a result it is proposed to deal with these claims and the earlier evidence before moving on to discuss the main body of available data.

Possible Palaeolithic and Earlier Mesolithic Activity in the Wear Valley

The earliest, firmly dated evidence for human occupation in Britain comes from the time of the Hoxnian Interglacial which spanned the period between about 250,000 B.C. and 200,000 B.C. (Howell, 1966, 104; Wymer, 1968, 42, 372). During this period Clactonian and Acheulian hand axe and lithic assemblages make their first appearance in Britain.

Mellars has documented general developments during and after this period for Lower Palaeolithic Britain as a whole (1974, 41-65). The major point to emerge from this work is that the majority of the surviving evidence for Lower and later Middle Palaeolithic activity is confined to the south and south-east of England. There are, however, some exceptions such as the cave sites at Cresswell (Derbyshire) and Pont Newydd (Denbighshire) with their Mousterian artefacts (Mellars, 1974, 64).

Evidence for Lower and Middle Palaeolithic activity in County Durham in general is, therefore, virtually non existent. Trechmann, writing in 1928, records "A supposed implement of Quartzite from beneath the boulder clay of the Durham Coast", at Warren House Gill (1928, 25-29), which he thought was a Palaeolithic flake. Doubt has been cast on this judgement by Lacaille (1954, 10), and the writer would agree with his scepticism about the human manufacture of the flake.

Hildyard (1949, 3) also records the existence of possible Acheulian 'artefacts' from five locations in the upper dale. All the 'artefacts' were discovered in river gravels and 'moraine' at the following places:

(a) "The Wear at Haggate", (NY 995 384)

(b) "Below Crutch Bank", (NY 968 385)

(c) "at Unthank", (NY 991 391)

(d) from the Horsely Burn,"below the waterfall over the whinstone outcrop", (NY 975 384)

(e) "Tunstall Reservoir",where Hildyard believed there had been a working site (Hildyard, 1949, 3).

Precise grid references are not available for these find spots, and those above merely give the general location of the areas referred to. All the 'implements' were discovered by Hildyard with the aid of Major E.R. Collins, D.S.O., who claimed the discovery of similar material in Nidderdale, Yorks, in the 1930's (Collins, 1930, 156-173) and also of Upper Palaeolithic material in the same area (1933, 185-187). Hildyard records that the Weardale 'artefacts' included "rostro-carinates, rostroid points, cleavers etc.", and that they "were all of types found in the Yorkshire dales, including Teesdale, (High Force), and Eskdale and Borrowdale in Cumberland". He further notes that the "materials were dolorite (whinstone), chert, metamorphosed sandstone and gannister", (Hildyard, 1960, 3).

It has not proved possible to trace any of this material in the course of this research, and fieldwalking in the general areas indicated by Hildyard produced negative results. It is not thought that the available evidence is convincing as an indication of definite Palaeolithic activity in the study area. Lacaille (1954, 10), points to material which sounds of a similar nature to that from the dale, from other areas of northern England, Scotland and Ireland (see also Smith, 1909 and Mann, 1936) and indeed, he illustrates two examples of "cleavers" (1954, 11, Fig. 3) which are undoubtedly naturally eroded pebbles. Whilst this does not totally invalidate the Weardale 'artefacts', in their absence one must treat the evidence with some scepticism.

However, if we are sceptical of the nature of the supposed Lower Palaeolithic finds from the valley and recognise a definite lack of such material from both the valley and the county as a whole, we must try to account for this. Why is there no Lower Palaeolithic material in the Wear Valley? This is a question which could be asked as easily of the whole of the north of England and it is one to which little time has been devoted until recently. Evans and Wymer and Straw in two discussions of the distribution of Lower Palaeolithic artefacts (Evans 1975, 17-22 and Wymer and Straw, 1977, 355-361) have considered the lacuna in the north.

Evans points to the lack of finds from Ireland, Scotland and northern England and at the beginning of his discussion he is keenly aware of the fact that the existing distribution pattern may not be a "real" one. He outlines the existing distribution,(1975, 18, Fig. 6) and sets out to account for the observed variations in this pattern. Dealing with possible distortions from geological processes, environmental change and methods of artefact collection he concludes that "on balance ... it seems likely that the overall distribution of Lower Palaeolithic artefacts in the British Isles is a true reflection of the distribution of Lower Palaeolithic man" (1975, 20). However, he does add the qualification that conclusive evidence is lacking from the highland areas for the period. He is critical of the possibility that material in the north has been destroyed by Devensian and earlier ice action because, "if this were so one would expect to find palaeoliths more often than we do in the boulder clay" (1975, 19).

This is a point which is taken up with some force by Wymer and Straw (1977, 355-361) in a paper dealing with three Acheulian handaxes and a struck flake recovered from beneath glacial till at Welton-le-Wold, Lincs. They take a diametrically opposed stance to that of Evans when they declare that "there must be some doubt as to whether the distribution as known reflects the real area of human occupation during the lower Palaeolithic period" (1977, 357).

They believe that the passage of glacial ice is likely to destroy most if not all of the pre-existing landscape and that it seems reasonable to assume that there is a temporal connection between the distribution of palaeoliths and the limits of the various ice sheets. By way of conclusion they see no reason why the north should not have been occupied in the Hoxnian and Ipswichian Interglacials, however, they believe that natural forces of erosion have made it impossible to recover more than a few chance finds like those from Welton-le-Wold.

The writer, whilst sceptical of the finds recovered in the dale, must, on balance, agree with Wymer and Straw. Given that climatic and environmental conditions were as good if not better during the Hoxnian and Ipswichian Interglacials than today, then it is hard to see why the area was not settled in the period in question. The free movement of game into the north of Britain would not have been restricted, and the finding of raw materials for implements and tools would present no problems. The lack of naturally occurring flint in the area of the valley could have been amply compensated for by the presence of chert, (which was available locally in the carboniferous limestone, and was used later in the Prehistoric period), and by the materials already referred to by Hildyard (1950,3). Shotton in fact cites several handaxes which are made of coarser rock than flint (Shotton, 1968, 477-491).

However, the scouring effect of the hypothesised local glaciation of Weardale and the intermingling of ice from several directions in the area of the lower valley (see above, pp. 40-41), may have effectively removed all traces of early activity in the study area. This scouring effect may be clearly seen at the Hutton Henry peat bog where the peat deposit had been almost completely destroyed by the passage of Devensian ice and only "isolated fragments", which had been churned up by the ice and redeposited in the boulder clay, survived (Turner, 1970, 124).

This prospect then, when taken in conjunction with later mining, quarrying, industrial deposition and settlement, in the Wear Valley may have severely limited the possibility of discovering evidence of what may have been the earliest activities of man in the area. It seems likely that, as Wymer and Straw say, "the few remains from Walton-le-Wold are probably the rare survivals of greater quantities of material, the majority of which has been destroyed by the forces of glaciation" (1977, 359).

The writer is at pains to suggest how future research might best be planned to further elucidate this problem, within both the valley and the county as a whole. One possible approach may be a concerted effort to examine already known cave deposits in the area, and to discover new cave sites. These may, on the assumption that they have escaped the scouring effects of the ice, produce evidence for the earliest human activity in the region. Pont Newydd and Cresswell Caves have produced evidence of 'Mousterian' or Middle Palaeolithic activity possibly dating from the time of the last Interglacial or a warm period during the Devensian glaciation (see above). These sites are within the area covered by the Devensian ice and so this approach may prove fruitful in the Wear Valley area, which has several cave complexes throughout its course.

Some work in this field has been carried out by Harding at the Ryhope Caves between Ryhope and Tunstall in Sunderland Borough within the lower Wear Valley (NZ 399 536). Acting on early twentieth century references to animal bones, winkle and limpet shells being found within the cave complex, he excavated at three cave sites in September-October 1975. However, he was forced to conclude, "that any archaeological deposits that may once have existed at Ryhope Caves have been totally destroyed" (Harding, A., 1979, 19).

Cave formation is better, however, on Carboniferous Limestone, and there are several possible sites in the upper dale area. Linnkirk Cave in the Shittlehope Burn (NZ 006 396) may repay excavation.

In 1947 Hildyard visited the cave and noted that, as at Heathery Burn, a stream ran through it. However, there is one portion of the cave which might produce evidence for human activity and which

Hildyard trowelled over on his visit producing a bone fragment (1957, 19). The deposits in the dry section of the cave would seem to be sandy, and Hildyard records that in places they were up to,"1 foot thick". The N.M.R. also records another possible cave site at NY 889 341 on Swinhope Head and this site might repay further research.

In terms of Upper Palaeolithic activity in the area there is also a lack of evidence. Manby (1966, 225-228) has reviewed the available material from the north of England and Campbell has produced a complete re-appraisal of the Upper Palaeolithic in the whole of Britain (1977). The distribution on the eastern side of England seems to stop in North Yorkshire (Campbell, 1977, II, 369, Fig. 41) and in the west, the northernmost site is the Kirkhead Cave in northern Lancashire (Campbell, 1977, II, 368, Fig. 40).

Neither writer considers why the situation should be so, and given that in the Late and Early Post Glacial period, climatic and vegetational conditions were probably the same (see pp. 46-50 above) one is faced with a similar problem to that discussed above for the Wear Valley. Again, it may be that cave research will produce Upper Palaeolithic artefacts, and further fieldwalking in the county and the valley may also reveal evidence for 'open' sites, though this would have to be a long term project. A further complicating factor may be that noted by Jacobi (1976, VI, 4) for Late Glacial occupation sites on or in the Allerød soils of southern England. These sites have become covered by solifluxion debris,"which has filled not only the coombes and (now) dried valleys where sites might be expected,but has spread for many miles onto the flatter ground beyond the parent slopes". A similar situation may have prevailed in the Wear Valley in this period, and if this is the case then any discovery of Upper Palaeolithic open sites will be totally fortuitous.

Earlier Mesolithic

It is only with the Earlier Mseolithic period that we have any definite evidence of man's presence in the study area. Published evidence for Earlier Mesolithic sites in Durham and Northumberland is slight (Jacobi, 1978, 296) and of the three lithic scatters and two tranchet axes recorded so far from Co. Durham (Preston, 1933; Coupland, 1925, 1925; Bennett-Gibbs, 1932; Trechmann, 1936; Jacobi, 1976, 46-47 and Coggins and Young, in preparation) only the axe from Monkwearmouth (NZ 402 585), found by Dodds in 1964, and to which it has not been possible to gain access, is from the study area.

With respect to the Earlier Mesolithic period it is possible to argue quite strongly that the lack of evidence from the valley is likely to be more apparent than real. Laurie's long term work in Teesdale and on Barningham Moor (NZ 060 080) to the south of the Tees is now producing evidence for typologically Earlier Mesolithic flint scatters (T. Laurie, pers. comm.) and Coggins has located a further site in Teesdale at Staple Crag (NY 904 278) (Coggins and Young, in preparation). It can only be a matter of time before continuing fieldwork in the Wear Valley produces this kind of material and the writer would argue that particular attention should be paid to locations such as river and stream terraces and low lying, waterlogged areas.

Before dealing with the bulk of the lithic material, several points need to be made relating to the nature of the data under study.

With the exception of the Early Bronze Age lithic material from Crawley Edge, Stanhope, (NZ 001 397) (B9), and that from Cambokeels (NY 932 382) (F7), none of the evidence from the study area comes to us as the result of excavation. The majority of the worked flint and chert found in the valley is the result of surface collection usually after ploughing,or in areas of peat and turf erosion. Thus, there is no certain stratigraphical relationship between the different implement types found, nor can we be certain that the lithic assemblages that are extant represent the total number of flint implements from the various locations.

One intriguing problem is caused by the occurrence together at several sites in the valley, of implement types which,if found separately, would be assigned to totally different chronological periods. For example, Flinty Field (NY 955 385),(F123), Howel John, West Field (NY 964 388) (F125), Police Field (NY 954 386), (F126) in the upper dale show Later Mesolithic, Neolithic and Bronze Age implements together. Mesolithic and Neolithic types are also found in seeming association at Whitfield Brow (NZ 006 344) (F128) and Greenhead Plantation (NY 979 395) (F124), again in the upper dale. In the lower dale, the site at Evenwood (NZ 155 250) (F121) has produced Mesolithic and Neolithic material, while at Binchester (NZ 207 315) (F119), Buck's Hill (NZ 278 412) (F120) and Finchale Nab (NZ 297 473) (F122) in the middle Wear valley, show, again, a mixture of material which could traditionally be assigned to all three periods. Table IV.1 below gives an indication of major implement types from each site mentioned above.

This occurrence of material of typologically different periods on the same site is not a feature common solely to the Wear Valley. Clark, (1932, 108-110), noted several associations of microliths with later material and Bateman (1861, 42) found microliths in two round barrows in Staffordshire, that from Castern being placed with the primary Beaker interment. In south Staffordshire at Cannock Wood, Cantrill and Cockin, (1916-17, 85-98) recovered two microliths in a surface collection with a leaf shaped arrowhead. Clark (1932, 109) believed this to be a genuine association and records a similar occurrence at Gorsey Bigbury in Mendip, where several microliths were found in ditch filling associated with material of Late Neolithic/Early Bronze Age date (1932, 109).

In a north of England context, similar phenomena have also been noted in Teesdale, at the Blackton Smelt Mill site (Trechmann, 1912, 69-73) where three barbed and tanged and three lozenge/leaf shaped arrowheads were found in a surface collection with denticulated blades

Site	Inventory Number	N.G.R.	Implement Types: Mesolithic	Implement Types: Neolithic	Implement Types: Bronze Age
Flinty Field	F123	NY 955 385	microliths	leaf shaped arrowhead	barbed and tanged arrowhead
Greenhead Plantation	F124	NY 979 395	microlith	leaf shaped arrowhead	-
Howel John West Field	F125	NY 964 388	microliths notched blades scrapers	petit tranchet arrowheads, chip from ? polished axe	-
Police Field	F126	NY 954 386	microliths notched blades burins	lozenge shaped arrowhead, ? scrapers	barbed and tanged arrowhead, ? scrapers
Rookhope, Redburn Common	F127	NY 906 444	flakes and blades	leaf shaped arrowhead	barbed and tanged arrowhead
Whitfield Brow	F128	NZ 006 344	microliths	leaf shaped arrowhead	-
Binchester	F119	NZ 207 315	notched blades	retouched knives	-
Bucks Hill	F120	NZ 278 412	"Shows the usual mixture of early and later sites"(J. Cherry, pers. comm.)		
Evenwood	F121	NZ 155 250	microliths notched blades	leaf shaped/lozenge shaped points/arrowhead, petit tranchet arrowhead	-
Finchale Nab	F122	NZ 297 473	microliths burins, blades	leaf shaped arrowhead	barbed and tanged arrowhead

Table IV.1 Major implement types from mixed sites in the study area and microliths in addition to flakes and blades. This 'mixing' of types has also been recorded on the Durham coast at Horden, where Trechmann recovered at least one microlith in an assemblage which also comprised of barbed and tanged, and lozenge and leaf shaped arrowheads, scrapers, and over 500 flakes of which "scarcely any" were over two inches long (Trechmann, 1905, 1-4). He was sure that the microlith, "had been clearly fashioned by the same hands that made the rest of the implements", and he commented on the fact that, "it shows the same condition of surface", as the other material. The site at Blackhall Rocks also shows a similar occurrence of supposedly chronologically distinct tool types (Trechmann, 1912, 76).

Possibly one of the clearest examples of this phenomenon in the north of England occurs at Crimdon Dene on the Durham coast, just north of Hartlepool (Raistrick and Westoll, 1933, 139-144; Raistrick et al., 1935, 207-216). Here over 900 microliths were found in association with barbed and tanged, leaf shaped and tri-angular points. The site occupies a boulder clay spur covered in patches of wind blown sand, and the flints were found scattered over most of the small area of the spur with a tendency to be most prolific at one or two restricted spots, which were only a few yards in diameter near the point of the spur (Raistrick et al., 1935, 209). The excavation of some of the small areas where sand still covered the site revealed that all the lithic material was contained in a few inches of grey sand under the recognisably different blown sand (Raistrick et al., 1935, 212). The excavators believed that this basal layer represented either an accumulation of dune sand during a relatively short period, or that it may have been a residual stratum from a larger deposit. They were also of the opinion that the finds represented a chronological telescoping of cultures in the area and that, "the microlithic workers arrived so late that Neolithic and Bronze Age were telescoped with them into a comparatively short and late period", (1935, 213-214). This is an idea which will be returned to below.

Further north, in the Tweed Valley, Mulholland has noted the presence of much Neolithic material on surface scatter sites of Mesolithic character (1970, 87-91). Lacaille has also shown what may be an overlap with Mesolithic and Beaker material at sites such as Morar, Risga, Sanna Bay and Cul-na-Croise Bay in Invernesshire (Lacaille, 1951, 103-139) and Clark (1932, 51) has referred to material from Shewalton Moor, Ayreshire, as being,"one of the final developments of our Tardenoisian, extending into the Bronze Age".

A similar situation has been recorded by Spratt at sites in North Yorkshire (D. Spratt, pers. comm.) and on several occasions,while excavating Mesolithic sites in the Central Pennines, Buckley recorded leaf and lozenge shaped arrowheads (e.g. Windy Hill, sites 5 and 8, Rishworth Moor, and March Hill) (Buckley MSS, 1922-32).

Thus, this mixing of what should be, in accepted terms, chronologically discrete lithic types,can be seen to be a fairly widespread phenomenon and no doubt the list of sites where it occurs could be extended. How then are we to interpret the sites in the study area where this phenomenon occurs? Obviously there may be no all-embracing solution to the problem but several suggestions can be put forward:

(a) The material may indicate human activity at the same sites at different chronological periods. Later ploughing or natural erosion may have caused a mixing of what were, originally stratigraphically distinct periods of 'occupation'. This may certainly be a feasible interpretation of material in the ploughed areas of the valley, but can this explanation be applied to sand dune sites such as that at Crimdon Dene?

(b) The material may well indicate continuous occupation of the sites from the Mesolithic to Neolithic to Bronze Age without any considerable time gap occurring at all.

Steer, writing in 1938 (1938, 18-19) believed that this occurrence of implements of supposedly different periods on the same site indicated a telescoping of cultures of the type discussed above. He saw the north of England as being removed from the major zone of continental cultural contact, which meant that in the prevailing 'invasionist' terms of the time, successive 'cultural waves' arrived late in the north, and that the dates of the individual 'cultures' must be scaled down in relation to similar 'cultures' in the south and east of England. Consequently, he believed that in the north of England, "we have no such thing as a pure Bronze Age, we have instead a fusion of Bronze Age and Neolithic elements and similarly, instead of a division of the Bronze Age into Early, Middle and Late, we have a gradual infiltration of elements belonging to these periods, into a culture that was little affected by it and changed only very gradually" (Steer, 1938, 19).

It is felt that, couched in these terms, this solution shows too simplistic a grasp of cultural/chronological development, and that, in the light of the increasing body of radio-carbon dates from the north, this monolithic application of the Three Age System is largely untenable.

A variation on this theme has been put forward by Lacaille, in discussing the Scottish evidence. He has suggested (1954, 276) that there was a long continuance of the hunting and gathering way of life in some areas, with sand dune environments being particularly favoured for this practice. He argued that material from these areas, which included simple flint types, pottery, metalwork etc.,might represent, "small unenterprising societies",of hunters and gatherers, who only had periodic contact with more advanced groups which did nothing to change their life style - what he termed an "epi-mesolithic" survival. Morrison has, however, indicated some of the problems which do not allow unqualified acceptance of such 'survival' theories (Morrison, 1980, 172). A third alternative, which has its basis in a technological solution does present itself:

(c) That the accepted typology has, in the past, been too rigidly applied to lithic material, and that artefacts identified specifically as 'Mesolithic', 'Neolithic' or 'Bronze Age' in date have been wrongly categorised.

Thus it may well be that the production of microliths went on in the study area into the Neolithic or even the Bronze Age, and that the associations of 'Mesolithic', 'Neolithic' and 'Bronze Age' types are real and occurred because there was some technological benefit to be derived from such a situation.

Clarke has suggested (1976, 457) that the "microlithic technique (of flint working), enables the maximum length of edge, and number of points, to be extracted from a minimal volume of flint" and that "the technique allows the regular exploitation of small nodular pebbles for even large artefacts, and this in turn allows the permanent occupation of territories without any other stone source". Herein may lie an alternative solution to this problem of interpretation. The technique of microlith manufacture may well have continued in some areas because of the nature of the raw material being used, and Clarke's arguments may be especially valid in the dale, where the only source of flint seems to have been pebbles/nodules, possibly from the Yorkshire coast or, to a lesser extent, the boulder clay of the Durham coast.

This problem will be returned to below in Chapter X when the so called 'Mesolithic/Neolithic Transition' in the valley is discussed. As it stands, it seems essential that some of the ideas outlined above be tested by controlled excavation and with some radio-carbon dating, and here again a significant problem is created. At one level, we have lithic scatters which show a 'mixture' of types. To ascertain what this 'mixing' means we need to excavate several sites in situ. However, the presence of these sites is only indicated after ploughing or erosion, which ultimately destroys stratigraphic relationships, has taken place. As a result it may be that a definitive answer to this problem may never be obtained and the data may always be open to more than one possible interpretation.

In the typological analysis which follows, these 'mixed' sites have been treated separately to see if any features emerge in the assemblages which are peculiar to 'mixed' sites alone. In Chapter X below, the writer has preferred to adopt an interpretation which is an amalgam of Lacaille's ideas and the technological argument put forward above. The sites are seen as Late, possibly the latest, Mesolithic hunter gatherer sites and as such they have been integrated into the overall model of Mesolithic resource utilisation put forward in Chapter X. In the light of the limited chronology available this seems a reasonable approach though future excavation and radio-carbon dates may force a revision of this interpretation.

The remainder of the lithic material from the study area has been grouped, on the basis of typological comparison,into the following categories: 'Mesolithic', 'Neolithic/Bronze Age', 'Mixed' and 'Indeterminate'. The number of locations producing this material is as follows:

Locations producing Mesolithic material - 73 (Fig. IV.1)

Locations producing Neolithic/Bronze Age material - 45 (Fig. IV.2)

Locations producing Mixed material - 10 (Fig. IV.3)

Locations producing Indeterminate material - 68 (Fig. IV.4)

Included in these figures are stray finds of petit tranchet, leaf shaped and barbed and tanged arrowheads in the Neolithic/Bronze Age section and individual finds of flakes etc. under the Indeterminate heading.

Table IV.2 below breaks the figures down further to show the numerical distribution of these locations within the various sections of the study area.

Area	Meso	% total Meso findspots	Neo/ BA	% total Neo/BA findspots	Mixed	% total Mixed findspots	Indet.	% total Indet. findspots	Total	% total findspots
Upper Dale	34	46.5	16	35.55	6	60	45	66.17	101	51.53
Lower Dale	4	5.47	12	26.66	1	10	11	16.17	28	14.28
Middle Wear	13	17.80	2	4.44	3	30	4	5.88	22	11.22
Lower Wear	22	30.13	15	33.33	-	-	8	11.76	45	11.22
TOTAL	73	99.9	45	99.9	10	100	68	99.9	196	99.9

Table IV.2 Distribution of Mesolithic, Neolithic/Bronze Age, Mixed and Interderminate sites in the study area

Information on altitudinal location is available for sixty-two (84.93%) of the Mesolithic sites, nineteen (42.2%) of the Neolithic/Bronze Age sites, ten (100%) of the Mixed sites and fifty-two (76.47%) of the Indeterminate findspots, which have precise grid references. This is expressed in Fig.IV.5 in histogram form. The information contained in Fig.IV.5 is fairly straight forward and little additional comment is needed other than to say that in all cases the spread of sites between 0-500 feet O.D. (153 m approximately) represents material from the lower and middle Wear area, while that from around 650-1850 feet O.D. (200-569 m approximately), represents material from the lower and upper dale areas. The altitudinal range in the dale covers the river terraces, lower valley slopes and the upland areas. Lithic finds have been made in all these locations though by far the greatest range of material comes from the terraces and lower slopes between Eastgate and Stanhope (see pp.28-33 for a detailed discussion of the factors which may lie behind this distribution).

TYPOLOGICAL DISCUSSION

In the following section, discussion has been limited to a comparative analysis of artefacts within Mesolithic, Neolithic/Bronze Age and Mixed categories of lithic finds noted above. With the exception of one identifiable core from Huntshield Ford (NY 891 381) (F156), the Indeterminate material is not included though it is fully described in the Inventory (see F129-F196).

An attempt has been made throughout to produce an integrated discussion in order to try and pin point any typological/technological changes which may have occurred in the lithic industries through time. Major types discussed are, cores, scraper forms, arrowheads, microliths, denticulated blades/saws, burins/gravers, borers/awls, retouched knives, notched flakes/blades, hammerstones, microburins, flint and chert pebbles (unworked) and waste flakes. Wherever possible an attempt has been made to place the artefacts in a general northern context though this part of the discussion has not been helped by the lack of detailed publication of lithic assemblages from Durham, Northumberland and Cumbria. No detailed discussion of miscellaneous retouched pieces, flakes and blades has been included though, where they occur on sites, they are documented in detail in the relevant Inventory entries.

Cores

Two hundred and thirty five cores have come from thirty four locations in the study area. Table IV.3 below shows totals for each chronological grouping of sites from the various sections of the valley.

It can be clearly seen that sites in the upper dale and middle Wear Valley have produced well over 90% of all cores seen by the writer, while the largest number of cores has been produced by the Mixed sites (57% of total finds).

Table IV.4 gives a breakdown of raw material type utilised in the four areas of the valley. To this data should be added one core in grey flint from the Indeterminate site of Huntshield Ford in the upper dale (NY 891 381) (F156). In total, one hundred and eighty two cores of all periods (77% of the total number of cores) are in varying shades of grey flint. This seems to have been the most popular raw material utilised in the study area. A comparison of this information with eighty three cores from five major sites on the Durham coast and in the east of the county (Filpoke Beacon NZ 475 375, Marsden and Trow Rocks NZ 406 645, Blackhall NZ 474 388, Deneholme NZ 456 405, and Crimdon Dene NZ 485 367), shows grey flint being used for just over 48% of the cores examined. A much wider range of flint colour has been noted and chert is completely absent on the coastal sites (see Table IV.5 below).

On this evidence, the range of raw materials used in the valley seems restricted. One further interesting point which emerges from this analysis of raw materials is that chert does not really seem to have been utilised until the Neolithic/Bronze Age period, in the area. Only one

AREA	MESOLITHIC			NEOLITHIC/ BRONZE AGE			MIXED			INDETERMINATE			Total cores	% of total
	No. of sites	No. of cores	% total cores	No. of sites	No. of cores	% total cores	No. of sites	No. of cores	% total cores	No. of sites	No. of cores	% total cores		
Upper Dale	18	36	15.32	3	33	14.04	3	89	37.88	1	1	0.42	159	67.66
Lower Dale	1	1	0.42	1	1	0.42	1	1	0.42	-	-	-	3	1.26
Middle Wear	2	28	11.92	-	-	-	2	44	18.70	-	-	-	72	30.62
Lower Wear	1	1	0.42	-	-	-	-	-	-	-	-	-	1	0.42
TOTAL	22	66	28.08	4	34	14.46	6	134	57.00	1	1	0.42	235	99.96

Table IV.3 Numbers of Mesolithic, Neolithic/Bronze Age, Mixed and Inderterminate cores in the sections of the study area

MESOLITHIC CORES

RAW MATERIAL TYPE	UPPER DALE		LOWER DALE		MIDDLE WEAR		LOWER WEAR	
	No. cores	% Mesolithic cores	No. cores	% Mesolithic cores	No. cores	% Mesolithic cores	No. cores	% Mesolithic cores
Grey flint	25	37.87	1	1.51	25	37.88	1	1.51
Pink fawn flint	1	1.51						
Red/brown flint	1	1.51			1	1.51		
Orange brown flint	1	1.51						
Totally fawn patinated flint	1	1.51						
Totally white patinated flint	4	6.06						
Totally pink/grey patinated flint	1	1.51						
Blue/grey patinated flint								
Burnt flint	1	1.51			2	3.03		
Black shiny chert								
Black/grey chert	1	1.51						
Grey chert								
Blue grey chert								
Dark grey banded chert								
Black/brown banded chert								
TOTAL	36	54.50	1	1.51	28	42.42	1	1.51

Table IV.4 Breakdown of raw materials used as cores in the study area (continued over)

NEOLITHIC/BRONZE AGE CORES

RAW MATERIAL TYPE	UPPER DALE		LOWER DALE		MIDDLE WEAR		LOWER WEAR	
	No. cores	% Neo/BA cores	No. cores	% Neo/BA cores	No. cores	% Neo/BA cores	No. cores	% Neo/BA cores
Grey flint	22	64.70	1	2.94				
Pink fawn flint	2	5.88						
Red brown flint								
Orange brown flint								
Totally fawn patinated flint								
Totally white patinated flint	3	8.82						
Totally pink/grey patinated flint								
Blue/grey patinated flint								
Burnt flint								
Black shiny chert	1	2.94						
Black/grey chert								
Grey chert	2	5.88						
Blue grey chert	1	2.94						
Dark grey banded chert	1	2.94						
Black/brown banded chert	1	2.94						
TOTAL	33	97.04	1	2.94				

Table IV.4Continued

MIXED SITES

RAW MATERIAL TYPE	UPPER DALE		LOWER DALE		MIDDLE WEAR		LOWER WEAR	
	No. cores	% Mixed cores	No. cores	% Mixed cores	No. cores	% Mixed cores	No. cores	% Mixed cores
Grey flint	65	48.50	1	0.74	41	30.59		
Pink fawn flint	4	2.98			1	0.74		
Red brown flint	2	1.49			1	0.74		
Orange brown flint								
Totally white patinated flint	8	5.97						
Totally fawn patinated flint	2	1.49						
Totally pink/grey patinated flint								
Blue/grey patinated flint	1	0.74						
Burnt flint	1	0.74						
Black shiny chert	1	0.74						
Black grey chert	1	0.74						
Grey chert	1	0.74						
Blue grey chert	2	1.49						
Dark grey banded chert								
Black/brown banded chert	1	0.74						
TOTAL	89	66.36	1	0.74	44	32.07		

Table IV.4 Continued

Flint Colour	Core Numbers
Grey flint	40
Fawn cream flint	9
Fawn brown flint	9
Red brown flint	10
Burnt flint	1
Cream/fawn patinated flint	5
Golden yellow flint	1
Toffee brown flint	3
Fawn/white patinated flint	1
Totally white patinated flint	3
Fawn pink flint	1
TOTAL	83

Table IV.5 Raw materials used on coastal/eastern Co. Durham sites

Mesolithic core from the sixty six examples examined is in black/grey chert, however chert of varying colours was used for just over 17% of the Neolithic/ Bronze Age cores and some 7% of the cores from Mixed sites.

One hundred and twenty cores from all periods retain cortex. In the main this is hard pitted pebble cortex, usually white, cream, buff or varying shades of brown in colour. Only five examples retain soft white chalky cortex. In terms of the various broad chronological groupings this breaks down as follows:

Period Grouping	No. of cores retaining cortex	% of total no. of cores	
Mesolithic	35	14.89	% of Mesolithic cores 53%
Neolithic/Bronze Age	19	8.08	% of Neo/BA cores 55.8%
Mixed	66	28.08	% of Mixed cores 49.25%
Indeterminate	-	-	-
Total	120	51.05	

Table IV.6 Numbers of cores retaining cortex in the study area

Similarly, forty four examples (18.72% of the total) of all periods show partial or incipient patination. Predominantly, this is white, fawn or varying shades of grey in colour. The total includes eleven Mesolithic examples, (4.68% of total core numbers, 16.66% of the total number of Mesolithic cores) four Neolithic/Bronze Age cores, (1.70% of the total core numbers; 11.76% of the total number of Neolithic/ Bronze Age cores) and twenty nine cores from Mixed sites, (12.34% of the total number of cores, 21.64% of the total number of cores from Mixed sites). Again, comparison with the lowland/coastal core sample is of interest, as some 68% of the eighty three examples retain cortex and 27.7% show partial or incipient patination. The implications of this are discussed below.

Writing in 1960, Clark et al. (1960, 216) divided the cores from the Neolithic site at Hurst Fen into five major classes on the basis of visible surviving striking platforms. This has become a standard method of classification and an attempt has been made below to classify the Wear Valley material in a similar way (Tables IV.7, IV.8, IV.9).

The figures clearly show that the commonest core form in all periods is the class Aii - one platform, flakes removed part of the way round (one hundred and seventeen examples, just over 49% of the total number of cores). Two platformed cores of all classes make up just over 24% of the total and class C (three platforms), with forty five examples comprises 19.9% of the whole core sample.

One interesting point which does emerge from an analysis of the above table is that there seems to be a change over to a restricted range of core types on Neolithic and Bronze Age sites from the wide range of forms recorded on the Mesolithic sites. The Mixed sites also show a wide range of core types. A similar overall pattern can be seen when the cores from the lowland/coastal sites referred to above are examined. The commonest form is the Aii class (53.16%), with class B making up over 13% and class C comprising 22.78% of the total.

MESOLITHIC CORES

CORE TYPE	UPPER DALE				LOWER DALE				MIDDLE WEAR				LOWER WEAR			
	No.	% total cores	%Mesolithic cores	No. with prepared scraping edge	No.	% total cores	%Mesolithic cores	No. with prepared scraping edge	No.	% total cores	%Mesolithic cores	No. with prepared scraping edge	No.	% total cores	%Mesolithic cores	No. with prepared scraping edge
CLASS A: ONE PLATFORM																
Ai Flakes removed all round	2	0.85	3.03						1	0.42	1.51					
Aii Flakes removed part way round	14	5.95	21.2		1	0.42	1.04		20	8.51	30.30	1				
CLASS B: TWO PLATFORMS																
Bi Parallel platforms	2	0.85	3.03										1	0.42	1.51	
Bii One platform at oblique angles	6	2.55	9.09	2					2	0.85	3.03					
Biii Platforms at right angles	4	1.70	6.06						1	0.42	1.51	1				

Table IV.7 Classification of Mesolithic cores (after Clark et al., 1960, 216)

CORE TYPE	UPPER DALE				LOWER DALE				MIDDLE WEAR				LOWER WEAR			
	No.	% total cores	%Mesolithic cores	No. with prepared scraping edge	No.	% total cores	%Mesolithic cores	No. with prepared scraping edge	No.	% total cores	%Mesolithic cores	No. with prepared scraping edge	No.	% total cores	%Mesolithic cores	No. with prepared scraping edge
CLASS C Three or more platforms	7	2.97	10.60	1					2	0.85	3.03					
CLASS D Keeled: flakes struck from two directions																
CLASS E Keeled but with one or more platforms	1	0.42	1.51						2	0.85	3.03					

Table IV.7 Continued

NEOLITHIC/BRONZE AGE CORES

CORE TYPE	UPPER DALE				LOWER DALE				MIDDLE WEAR				LOWER WEAR			
	No.	% total cores	% NEO/BA cores	No. with prepared scraping edge	No.	% total cores	% NEO/BA cores	No. with prepared scraping edge	No.	% total cores	% NEO/BA cores	No. with prepared scraping edge	No.	% total cores	% NEO/BA cores	No. with prepared scraping edge
CLASS A: ONE PLATFORM																
Ai Flakes removed all round	16	6.8	47.05	2												
Aii Flakes removed part way round																
CLASS B: TWO PLATFORMS																
Bi Parallel platforms	1	0.42	2.94													
Bii One platform at oblique angles	3	1.27	8.82	1												
Biii Platforms at right angles					1	0.42	2.94									

Table IV.8 Classification of Neolithic and Bronze Age cores (after Clark, et al.1960, 216).

NEOLITHIC/BRONZE AGE CORES

CORE TYPE	UPPER DALE				LOWER DALE				MIDDLE WEAR				LOWER WEAR			
	No.	% total cores	% NEO/BA cores	No. with prepared scraping edge	No.	% total cores	% NEO/BA cores	No. with prepared scraping edge	No.	% total cores	% NEO/BA cores	No. with prepared scraping edge	No.	% total cores	% NEO/BA cores	No. with prepared scraping edge
CLASS C Three or more platforms	13	5.53	38.23													
CLASS D Keeled: flakes struck from two directions																
CLASS E Keeled but with one or more platforms																

Table IV.8 Continued

MIXED CORES

CORE TYPE	UPPER DALE				LOWER DALE				MIDDLE WEAR				LOWER WEAR			
	No.	% total cores	% Mixed cores	No. with prepared scraping edge	No.	% total cores	% Mixed cores	No. with prepared scraping edge	No.	% total cores	% Mixed cores	No. with prepared scraping edge	No.	% total cores	% Mixed cores	No. with prepared scraping edge
CLASS A: ONE PLATFORM																
Ai Flakes removed all round	6	2.55	4.47	1					1	0.42	0.74					
Aii Flakes removed part way round	48	20.42	35.82	5	1	0.42	0.74		17	7.23	7.69					
CLASS B: TWO PLATFORMS																
Bi Parallel platforms									1	0.42	0.74	1				
Bii One platform at oblique angles	17	7.23	12.68						8	3.40	5.97	2				
Biii Platforms at right angles	7	2.97	5.22	1					3	1.27	2.23	1				

Table IV.9 Classication of Mixed cores (after Clark et al., 1960, 216).

MIXED CORES

CORE TYPE	UPPER DALE				LOWER DALE				MIDDLE WEAR				LOWER WEAR			
	No.	% total cores	% Mixed cores	No. with prepared scraping edge	No.	% total cores	% Mixed cores	No. with prepared scraping edge	No.	% total cores	% Mixed cores	No. with prepared scraping edge	No.	% total cores	% Mixed cores	No. with prepared scraping edge
CLASS C Three or more platforms	10	4.25	7.46	1					13	5.53	9.70					
CLASS D Keeled: flakes struck from two directions	1	0.42	0.74													
CLASS E Keeled but with one or more platforms									1	0.42	0.74					

Table IV.9 Continued

In a wider northern British context there is little comparable material on core forms, with most of the major published data referring to the Mesolithic. Manby's survey of, "Some Mesolithic Sites in the Peak District and Trent Basin", (1962, 10-23) produced information from four sites and showed that in this area Aii cores were again the most common form (forty examples, 43.01% of the total), with class B cores making up 29% (thirty one examples) and class C some 6.45% of the total (six examples). The figures for Aii and all class B cores compare very favourably with the Mesolithic material in the Weardale sample. Class Aii makes up 45.74% of the Weardale data, class B (all types) comprises 27.00% and class C some 18% of the total of Mesolithic cores in the dale.

Other, published, northern Mesolithic sites have not been dealt with in as much detail, cores being classified solely on the number of platforms visible in many instances. Table IV.10 below shows available data from sites in four districts, compared with the Weardale Mesolithic sample. The Weardale material does not appear to differ radically from the general range of core types from other northern Mesolithic sites.

A recurrent feature, observed by many workers is the retouching of striking platform edges to form 'core scrapers'. Twenty examples were recorded from the total number of cores in the valley. This figure includes fifteen from the upper dale (three Mseolithic, four Neolithic/Bronze Age and eight Mixed examples) and one Mesolithic example from the middle Wear. The other four examples come from the Mixed site at Finchale Nab in the middle Wear (NZ 297 473) (F122). Only three examples were recorded in the lowland/coastal sample of cores, all from the Mixed site at Crimdon Dene (NZ 485 367).

Throughout the north the scale of the occurrence of this feature varies. Only three examples have been recorded from the well published series of sites from the St. Bees area in Cumbria, while at

SITE	CORE CLASS											
	A		B		C		D		E		Unclass.	
	No.	% of total from site	No.	% of total from site	No.	% of total from site	No.	% of total from site	No.	% of total from site	No.	% of total from site
Barsalloch, Wigtownshire	39	45.8	29	34.10	9	10.5	-	-	-	-	8	9.4
Low Colne, Wigtownshire	23	48.93	18	38.29	6	12.7	-	-	-	-	-	-
Lealt Bay, Jura	87	67.40	37	28.68	5	3.8	-	-	-	-	-	-
St. Bees District, Cumbria (14 sites)	549	72.70	175	23.17	25	3.31	6	0.79	-	-	-	-
Weardale (all sites)	38	57.50	16	24.27	9	13.63	-	-	3	4.54	-	-

Table IV.10 Comparison of numbers of core types from sites in Scotland and Cumbria with the Weardale sample

Drigg, some 94% of all cores recorded (one hundred examples) had been retouched (Nickson and McDonald, 1955, 21). At the three Scottish sites of Lealt Bay (Mercer, 1968, 22), Barsalloch (Cormack, 1970, 67-70) and Low Clone (Cormack and Coles, 1968, 57), 24% 38% and 40% respectively of the cores recovered had been converted to core scrapers, though from the whole of the south-west coast of Scotland,Coles records only forty one examples from nineteen sites (Coles, 1964, 94, Table 1). Nearer to the study area, on the coast of Northumberland, Buckley noted no examples from the sites he discussed (1925, 42-47) while Raistrick (1933a,194) recorded six examples, 17.6% of the total of thirty four cores from the site, at Lyne Hill. In a general overall context, the figures from the valley seem lower than those from published sources in the rest of northern Britain.

Further interesting points emerge when the data on core size in the valley are considered. Information on length and breadth will be discussed first (see Fig.IV.6). Immediately it can be seen that Mesolithic cores in the upper dale and middle Wear are approximately the same size when discarded. Approximately 47% of all Mesolithic cores in the upper dale and 43% of Mesolithic cores in the middle Wear are greater than 25 mm in length, while approximately 23% of the upper dale cores and 29% of the middle Wear cores are larger than 25 mm in breadth. These figures change considerably when one examines the Neolithic and Bronze Age cores from the upper dale (Fig.IV.6b). Here, just over 57% of all the cores in the area are longer than 25 mm and just over 51% are broader than 25 mm. Thus, there seems to be a general trend, in the upper dale at least, for cores to become larger and much broader through time. The histograms also indicate that cores from mixed assemblages are larger in the middle Wear than they are in the upper dale, (Fig. IV.6c).

A comparison of all this data with the coastal/lowland core sample (Fig.IV.7) shows that cores in these areas were much larger than those in the study area when discarded. Some 77% are above 25 mm in length and 38% are above 25 mm in breadth. Regional variation in size is clearly demonstrated when the Mixed sites are examined in detail. Figs. IV.8, IV.9, IV.10, IV.11, and IV.12 show lenght/breadth data for cores from Police Field (F126), Howl John West (F125), Binchester (F119), Finchale Nab (F122) and Crimdon Dene on the coast, outside the study area, plotted as scattergrams. Applying an arbitrary 25 mm cut off point to these diagrams it can be clearly seen that Police Field and Howl John have more cores below than above this line. At Finchale Nab, lower down the river in the Middle Wear the cores can be seen to be much larger when discarded. At Binchester the evidence is inconclusive, though the sample is very small. However, when the Finchale Nab sample is compared with that from Crimdon Dene the size range at the latter site is much wider, indicating again that the cores are larger when discarded. The difference between core size on the upland sites when compared with the Crimdon sample is obvious.

Just over 46% of all Mesolithic cores in the upper dale are greater than 10 gms in weight, with the average weight being 11.72 gms, while some 57% of the Mesolithic cores in the middle Wear are above 10 gms (average weight, 13.17 gms) (Fig.IV.13a).Of the Neolithic/Bronze Age cores in the upper dale,just over 54% are above 10 gms,with an average weight of 11.92 gms. Only just over 26% of the Mixed cores in the upper dale, but over 53% of those in the middle Wear, are over 10 gms in weight and the average weight of Mixed cores in the upper dale is 8.20 gms while in the middle Wear it is 11.77 gms (Fig. IV.13b).

Comparative data is only available for twenty two of the lowland/ coastal sample; weights range from 5.9 gms at Blackhall Rocks to 33.1 gms at Filpoke Beacon, with an average weight of 19.4 gms. Over 90% of the sample are above 10 gms in weight.

The above data would seem to show that cores get larger when discarded as time progresses and that on the coast cores are significantly heavier and larger than anywhere in the study area.

The massiveness of the coastal/lowland cores may reflect the ready access that these sites may have had to sources of raw materials in the boulder clay of the coast. In the upper dale and middle Wear where there is no flint readily available, we may be seeing the maximisation of the use of the available sources of raw material. Flint would have had to be brought into the area, and this may have been done in the course of a seasonal hunting round (see below, Chapter X). The tendency for cores, in the upper dale at least, to get bigger as time progresses may reflect several things, such as an increase in available supplies of raw material (it is in this period that chert seems to be utilised for the first time on a larger scale than at the Mesolithic sites). This would obviate the need to conserve and maximise the flint source and it may also be indicative of a change in flint working technique. This latter point may also be supported by the restricted range of core types visible at the Neolithic/Bronze Age sites (see Table IV.8 and discussion above) when compared with the wide range visible in the Mesolithic assemblages. The variation in core forms on the Mesolithic sites may well attest to the ingenuity of Mesolithic groups in extracting as many useful blades and flakes as possible from the available raw material. What is really needed now in the whole of the north of Britain is a re-analysis of all cores available for study in an attempt to detect similar changes to those observed in the Wear Valley material.

Scrapers

A total of seventy eight scrapers come from the study area. These can be classified under the following headings:

Mesolithic	32	
Neolithic/Bronze Age	12	
Mixed	34	(includes six from Police Field [F125], illustrated by Fell, [Fell and Hildyard, 1953, 107, Fig. 3] and now lost).
Total	78	

Table IV.11 gives data concerning raw materials used for scraper manufacture. The six lost examples from Police Field are not included. Table IV.12 breaks down the total sample recovered on the basis of scraper form.

This clearly shows that the commonest scraper forms in all periods, in the study area are simple types on the ends of flakes, while the mixed assemblages show the greatest overall variation of scraper form. Figs. IV.14 - IV.17 give a complete summary of the metrical data for scrapers of all periods. The Mesolithic evidence indicates an emphasis on short squat implements, 61% of the total are between 15-25 mm in length and 64% are between 15-25 mm in breadth, while just over 80% are less than 10 mm thick. A comparison with the Neolithic material seems to indicate a move towards larger, broader and slightly thinner scrapers, with approximately 41% between 15-25 mm in length,with an increase by 28% of those forms between 25 mm and 35 mm long. Only 15% are between 15-25 mm in breadth,with some 25% of the Neolithic total between 25-35 mm (an increase of 13% on the Mesolithic sample). Similarly, the Neolithic/Bronze Age scrapers seem to be slightly thinner with 91% being less than 10 mm in thickness. As Fig. IV.16 shows the Mixed sites show a much wider range of dimensions,with 96% of implements from these sites being less than 10 mm in thickness.

Differences can also be observed in other aspects of the metrical data. The angle of retouch on all scrapers was recorded with Mesolithic angles ranging from 20^{o} to 86^{o} (average angle of retouch 61^{o}), Neolithic/Bronze Age angles ranging from 52^{o} to 92^{o} (average angle of retouch 73^{o}) and Mixed forms ranging from 33^{o} to 86^{o} (average angle of retouch 68^{o}).Fig. IV.17 shows the general distribution of angles of retouch for scrapers of all periods and it can be seen that the Mesolithic forms have a greater variation in angle size while all the Neolithic/ Bronze Age implements have angles in excess of 50^{o}. The Mixed forms

	FLINT COLOUR								CORTEX COLOUR					PATINATION		
	orange/ brown	grey	fawn	fawn/ pink	red/ brown	brown	fawn/ white	burnt	buff	grey	fawn	white (hard)	black	partial	TOTAL white	TOTAL fawn
MESOLITHIC	1	27	1	1	-	-	1	-	5	2	1	4	1	2	-	1
NEOLITHIC/ BRONZE AGE	-	10	-	-	-	-	-	-	-	2	1	1	1	-	2	-
MIXED	1	23	-	-	2	1	-	1	4	3	-	-	-	1	-	-
TOTAL	2	60	-	-	2	1	1	1	9	7	1	4	1	3	2	1

Table IV.11 Classification of raw materials used for scraper manufacture in the Wear Valley

SCRAPER FORM	Meso.	% total Meso. scrapers	Neo/BA	% total Neo/BA scrapers	Mixed	% total Mixed Scrapers	TOTAL	% of Total
End of flake	20	62.50	6	50.00	16	47.05	42	53.84
End of blade	1	3.12	-	-	1	2.94	2	2.56
Side of flake	2	6.25	1	8.33	5	14.70	8	10.25
Side and end of flake	4	12.50	1	8.33	1	2.94	6	7.69
Rounded/Thumbnail	5	15.62	3	2.5	9	26.47	17	21.79
Worked on 4 sides	-	-	1	8.83	1	2.94	2	2.56
Hollow scraper/end of flake	-	-	-	-	1	2.94	1	1.28
Total	32	99.9	12	99.9	34	99.9	78	99.9

Table IV.12 Classification of scraper forms occurring in the study area also show a wide spread of angles with two discrete peaks between 60° and 70°, and 80° and 90°.

In traditional terms it would seem that scrapers become longer, broader and more steeply retouched as time progresses. In functional terms this change in dimensions may have interesting implications. An analysis of edge wear was beyond the scope of the present work, however, recent work on edge angles and angles of retouch on implements may have some bearing on a discussion of the function of the Wear Valley scrapers.

The relationship between edge angle size and different functional applications was initially explored by Sonnenfeld (1962) and in later work Wilmsen (1968, 1970) suggested specific functions for each of several, distinct, classes of angle size. Ethnographic observation (Gould, Koster and Sontz, 1971; White and Thomas 1972) has since borne out this hypothetical relationship, and Tainter has made a useful contribution to the subject with his study of lithic scatters in the Mountainair district of New Mexico (1979, 463-469).

Wilmsen (1970, 70-71) suggests that edge angles will fall into three broad functional categories, e.g. 26°-35° having a simple cutting function, 46°-55° being used for skinning, hide scraping, sinew and plant fibre shredding, heavy cutting of wood, bone or horn and tool back blunting and 66°-75°, woodworking, bone working, heavy shredding and skin softening. In addition, as Tainter points out (1979, 465), D.H. Thomas (1971, 42, quoted in Tainter), has suggested that the very sharpest edges, those less than 20°, would have been used for whittling wood.

Viewed in this light the angles of retouch on the Wear Valley scrapers may suggest that, while some were used as simple, sharp, cutting implements, the majority (those over 40°) were used for a wide range of tasks such as skinning, hide scraping, woodworking and plant food preparation etc. The Neolithic/Bronze Age sample, however, shows a much greater emphasis on more steeply retouched pieces and may indicate a shift in emphasis away from skinning and hide scraping etc. to heavier tasks such as wood and bone working, heavy shredding of vegetable foods and skin softening.

The scrapers from Mixed sites again show a wide range of angle sizes and therefore of possible functions, within the sample. Over 80% of the sample have edge angles in excess of 60° which may indicate a concentration on the heavier tasks outlined above.

In the context of the region in general, all the scraper forms identified in the valley can be easily paralleled (see for example, the Mesolithic sites at Spindleston and Lyne Hill on the Northumberland coast (Raistrick, 1933a, 188-198), and the sites at Walney Island and Drigg and Eskmeals in Cumbria (Barnes, 1970, 277-280; Cherry, 1965, 66-85; Cherry, 1963, 31-52), the Neolithic/Bronze Age site at Newton Ketton, Co. Durham (material in Darlington Museum) and the Mixed Site at Crimdon Dene, Co. Durham (Raistrick, et al., 1935, 187-199).

Due to the lack of published material of suitable quality, a metrical comparison of the Wear Valley material with other northern scraper types was difficult. However, Fig.IV.18 shows length and breadth data for thirty three published Mesolithic scrapers from Lyne Hill (13), Birtley (1), Element Head and Sand le Hole (2), Spindleston (6) and Ross Links (7) all in Durham and Northumberland and Walney Island (4) in Cumbria (Raistrick, 1933a, 188-198; Barnes, 1970, 277-280). The same general trends are visible on this sample as in the Wear Valley histogram with an emphasis on short, squat scrapers. However, the angle of retouch data is interesting, with a greater emphasis on edge angles above 50°. Similarly, Fig. IV.19 shows the available metrical data for published scrapers from Neolithic/ Bronze Age sites in Cumbria (Cherry, 1963, 31-52). Again, when compared with the other published northern Mesolithic examples, the observable trend is for scrapers to become longer and broader with time and there is also a shift towards steeply retouched pieces as can be seen with the comparison of the Wear Valley material of both periods.

Admittedly this is only a limited comparison using readily available data, gathered from published drawings, however, it may serve to show that the Wear Valley scrapers fit nicely into a general pattern for the north which may be further elucidated by a concerted scheme of research on the mass of unpublished material in the region's museums. Few Mixed sites have been published thus it was not possible to find comparanda in the literature for the Wear Valley sites.

Arrowheads (Fig. IV.20)

The study of arrowhead forms has been greatly advanced by Green's recent survey of 'The Flint Arrowheads of the British Isles' (1980). The following discussion draws heavily upon his classificatory work.

Altogether some fifty three pieces which can be classified under the heading 'arrowheads' have been identified in the study area. This figure includes four petit tranchet derivatives (all extant), twenty two leaf shaped arrowheads, ten examples of which are now lost and twenty seven barbed and tanged arrowheads. Of this latter figure thirteen are extant examples, while fourteen have been tentatively identified from the literature and are now presumed to be lost. Drawings of four of these are published (Egglestone, 1916, 206, No. 1; 1916a, 220; Fell and Hildyard, 1953, 135, Fig. 1, Nos. 5 and 19).

The following table shows the numerical distribution of each morphological type within the divisions of the study area.

Type	Upper Dale	Lower Dale	Middle Wear	Lower Wear	Total
p.t.d's	3	1	-	-	4
leaf shaped	9	6	3	4	22
barbed and tanged	16	4	1	6	27
Total	28	11	4	10	53

Table IV.13 Distribution of arrowhead forms in the study area

Of the petit tranchet derivatives, three are from flint assemblages from Evenwood (F121) and Howl John West Field (F125) (1 and 2), while the Rookhope Chimney implement (F106) is a stray find. Thirteen of the leaf shaped arrowheads come from flint assemblages with two examples coming from a burial deposit, Warden Law (F113), and seven stray finds. Nine of the barbed and tanged pieces come from flint scatter sites while fifteen are stray finds, two supposedly come from the Heathery Burn Cave (F88) and one from a cist burial at Wheat Hall Farm, Whitburn (F118).

Petit Tranchet Derivatives

Prior to Green's work (1980) the major piece of published research on these arrowhead forms was that of Clark (1934a), who distinguished nine major categories (A-I) (1934a, 34-35). The two examples from Howl John West Field (F125) (Fell and Hildyard, 1953, Fig. 4, No. 13 and 14) would fall into Clark's class Bi, which shows all the main features of the parent class A tranchet arrowhead but sees a flattening of the edge flaking which, in the parent form, is almost vertical (Clark, 1934a, 36). Both pieces under discussion also show a second feature noted by Clark - the tendency for edge trimming from both faces of the flake in contrast to the unidirectional retouch of the class A type.

The Rookhope and Evenwood specimens would fit into Clark's class D having a marked concavity in one edge effectively making the form asymmetric (Clark, 1934a, 36).

Green has carried Clark's work further with a detailed metrical analysis of projectile points and would discern three major categories of transverse arrowhead, broadly corresponding to Clark's classes A, B-D and E-I, these being 'petit tranchet', 'chisel' and 'oblique' (1980, 30).

All of the Wear Valley examples fall into Green's 'chisel' class which he shows have a marked distribution in the Yorkshire Wolds area. Similar finds in the north east appear rare. One fine example comes from the flint assemblage from Newton Ketton (Sturge collection, British Museum), possibly in association with leaf and barbed and tanged arrowheads, while a second from excavations at Piercebridge has been seen by the writer (Young, forthcoming). No other examples have been recorded by the author, though oblique arrowheads are known from Eskmeals, Cumbria (Cherry, 1963, 43-44) and Haugh Head, Wooler, Northumberland (Green, 1980, 299).

Green gives a full discussion of the available chronological evidence for this form (1980, 111-114), placing them in a general late fourth/early third to late third/early second millennium context, with settlements providing the greatest number of contexts for chisel forms.

All of the Wear Valley examples are in grey flint with lengths ranging from 20 mm to 45 mm with an average length of 29.7 mm and width of cutting edge ranging from approximately 22 mm to 47 mm with an average of approximately 30 mm.

Leaf Shaped Arrowheads

Twenty two examples have been recorded from the study area (see table above). Of this figure, twelve are still extant and ten could not be traced by the writer and are presumed lost. Of the extant examples, five are in grey flint, Rookhope Chimney (F127), Beckside Hamsterley (F86), Middridge Grange (F104), Finchale Nab (F122) and Greenhead (F124); two, (Warden Law 1 and 2) (F113) are totally white patinated; three (Evenwood 1, 2 and 3) (F121) are in red/brown flint while the Hollybush, Lanchester, piece (F90) is in honey/gold flint and that from Flinty Field (F123) is in a mottled amber brown flint. Two, those from Evenwood (No. 1) and Middridge Grange retain hard pitted grey and buff cortex respectively on their dorsal faces. Evenwood Nos. 1 and 3 both exhibit incipient grey/white patination and both show evidence for secondary working having taken place after patination had begun.

Basic length/breadth data is available for sixteen of the finds. Information for the Bankfoot Quarry (F74), Police Field (F126) and Rookhope (F127) finds, now lost, comes from Fell and Egglestone's published drawings (Fell and Hildyard, 1953, 139, Fig. 3, No. 18 and 143, Fig. 5, No. 6; Egglestone, 1909-1910, 207, Nos. 7 and 8). Data for the slightly broken examples from Hollybush, Greenhead and Evenwood (Nos. 1 and 3) has been approximated. With these points in mind length ranges from 19 mm to 39 mm with an average length of 25.6 mm, while breadths range from 14 mm to 29 mm with an average breadth of 17.5 mm. There does not appear to be any positive correlation between size and any discrete section of the study area.

Of the extant examples only two, Finchale and Hollybush have been very finely pressure flaked over all of both faces. The pieces from Rookhope, Beckside, Greenhead and Evenwood (No. 2) show partial retouch on both faces, while the Middridge Grange example exhibits retouch on the dorsal face only.

Evenwood Nos. 1 and 3 also show unifacial retouch, but in these two examples it is confined to very fine working on the edges on the dorsal face. From Fell's drawings it would seem that the Police Field and Bankfoot examples may well have been retouched on both faces. However, the working on the Police Field piece seems very crude.

Green has recently re-classified the leaf shaped projectile points of the British Isles (1980, 10-29, 67-99) and using a principal components analysis, has devised a typology based on the division of size range into four, and shape range into three, components (1980, 21-22). Simplified, this typology hinges on length breadth ratios and relationships (1980, 21) and the ratio value ranges of his twelve typological groupings are shown in his Table II, 18 (1980, 206). In addition to the criteria shown in Table II, 18, Green also uses the suffixes o, k and p to define ogival, kite shaped and polished arrowheads. The full typological range is shown in his Figs. 26 to 29.

Using Green's typology the following categories can be noted:

2AK	Police Field (F126)	(Fig. IV.71, No. 12)
3A	Evenwood 1 (F121)	(Fig. IV.63, No. 6)
	Evenwood 2 (F121)	(Fig. IV.63, No. 7)
	Evenwood 3 (F121)	(Fig. IV.63, No. 8)
	Finchale Nab (F122)	(Fig. IV.65, No. 14)
	Middridge Grange (F104)	(Fig. IV.59, No. 2)
	Rookhope Chimney (F127)	(Fig. IV.73, No. 3)
3B	Hollybush (F90)	(Fig. IV.58, No. 2)
	Rookhope Chimney (F127)	(Fig. IV.73, No. 12)
	Warden Law 1 (F113)	(Fig. VIII.32, No. 3)
4A	Bankfoot Quarry (F74)	(Fig. IV.56, No. 4)
	Flinty Field (F123)	(Fig. IV.68, No. 5)
	Greenhead (F124)	(Fig. IV.68, No. 23)
	Beckside Hamsterley (F87)	(Fig. IV.57, No. 13)
	Warden Law 2 (F113)	(Fig. VIII.32, No. 4)
	Rookhope Chimney (F127)	(Fig. IV.73, No. 3)

While Green points out that the north-east is one of several regions lacking large concentrations of leaf shaped arrowheads (1980, 67), he also shows that the commonest form in northern England is his type 4A. This type occurs regularly in areas divorced from good quality stratified flint and is usually made from the squat flakes most easily struck from low quality material. Indeed, Green argues that formal variability of types 3A-C and 4A-C is related primarily to available raw material, "and that this part of the typology may have no significance beyond that of description of geographical variations in typology" (1980, 68).

The occurrence of the kite shaped arrowhead at Police Field is of interest. The national distribution pattern shows a heavy Irish/ Scottish concentration with a lesser concentration in the Peak District and kite shaped arrowheads make up 5.8% of the total of all leaf shaped arrowheads in the north of England/Southern Pennines region (1980, 75).

Green's ultimate conclusions relating to the leaf shaped arrowhead series is that the whole typology, "is ... to be viewed with extreme scepticism and any attempt to suggest a cultural or chronological significance for any particular type must take account of the constraints as well as the opportunities afforded by the raw material used" (Green, 1980, 74).

In the light of these comments, which seem to be borne out by Green's metrical work, a detailed typological discussion of leaf shaped arrowheads in the region would seem to be superfluous. What follows then is merely a compendium of stray finds and sites which have produced similar arrowhead forms to those from the study area. Three examples from Horden on the Durham coast are published by Trechmann (1905, plate XXVI, Nos. 12-14), No. 14 bearing a striking resemblance to that from Hollybush. One example from Allendale (Trechmann, 1912, Plate III, No. 7) shows secondary working carried out after patination had commenced (cf. Evenwood 1 and 3) and a crude example in black flint and a broken implement in grey flint, were recovered from Blackton Smelt mill in Teesdale (Trechmann, 1912, Plate III, Nos. 4 and 9).

The greatest number of leaf shaped arrowheads from sites in Co. Durham comes from Crimdon Dene (Raistrick et al., 1935, 208). Five examples come from the site. "They are all rather more than an inch in length, ovate and pointed at the fore end and rounded at the bulbar end. The chipping is nearly uniform over both sides, the thickest part being about one-third the length from the butt. The edge is sharpened the whole way round by very fine and regular chipping" (Raistrick et al., 1935, 212). Two very finely pressure flaked examples of Green's class 3A and 1B from the site of Newton Ketton have also been examined by the writer (Sturge Collection, British Museum).

Published examples of leaf shaped arrowheads from Cumbria and Northumberland are rare. An arrowhead of Green's type 3B was recorded as a stray find at St. Bees (Charry and Cherry, 1973, 59 and Fig. 3, No. 43) and Cherry also records leaf shaped arrowheads at "the Sandpits", Drigg (1965, 69). Green himself only notes two possible examples from Old Parks Tumulus, Cumbria (1980, 421). In Northumberland the situation with regard to published examples is similar, though Beckinsall (1976, 15) does state that, "many leaf shaped arrowheads", are known from the area. Green records only one example from a barrow at Ford (Greenwell, 1877, 410 and Green, 1980, 299), and Raistrick also records, "leaf shaped arrowheads", from the Lyne Hill area of the Northumberland coast (1933a, 195).

Again, this aspect of north-eastern flint assemblages has been ignored, though on available evidence the Wear Valley material does not seem to be at variance with the leaf shaped forms from the rest of the region.

Barbed and Tanged Arrowheads

In this section it is proposed to deal with the fourteen examples which are now lost and then move on to discuss the extant finds in the light of Green's typological research.

Of the former category, six, Larkseat Fell Gate (F100), Pikeston Fell (F105), Ryhope, North Dene (F103), Sunderland, Mount Road (F110) and West Bustfield (F117) and Sately (F108) were stray finds, picked up in isolation. Nothing more can be said of them. The Wheat Hall Farm, Whitburn, find (F118) came from a cist burial (Bennett-Gibbs, 1932, 23) and is now also untraceable, while no further reference can be found to the second barbed and tanged arrowhead, reputed to have come from the Heathery Burn Cave (F88) (Hildyard, 1957, 5). However, further information is available for six lost examples. Five come from flint scatters in the upper dale at Westernhope Burn (F116) and the mixed sites at Flinty Field (F123) and Rookhope Chimney (F127), the sixth is a stray find.

Of these, one of the Westernhope Burn finds was retained by E.J.W. Hildyard's son, Robin (Fell and Hildyard, 1956, 132), and while the writer has been in contact with him, no further information was forthcoming. The other find from the site and the Flinty Field example were, however, drawn by Fell (Fell and Hildyard, 1956, 135, Fig. 1, Nos. 5 and 19).

The Westernhope Burn arrowhead was missing its right barb but from the drawing it seems to have been a very finely flaked implement. It can be placed into Green's Sutton Type c, having a barb length/tang length ratio of 0.85 and a length by breadth score of 837. It also exhibits Green's barb and tang combination AF (pointed barbs and square tang) (Green, 1980, 49-51) (Fig. IV.60, No. 10).

That from Flinty Field can also be placed into Green's Sutton Type c, having a barb length/tang length ratio of 0.5, a length by breadth score of 483 and a barb-tang combination AF. The retouch on this piece does not seem to be of the same quality as that of the Westernhope Burn find (Fig. IV.68, No. 6).

The two lost examples from Rookhope were both illustrated by Egglestone (1909-10, 206, No. 1; 1911-12a, 220). No. 1 is of Green's Sutton Type b having a barbed length/tang length ratio of 0.8, a length by breadth score of 1012 and a barb-tang combination BG. No. 2 is missing the left barb, but can also be placed in the Sutton Type b category, having a barb length/tang length ratio of 1.1, a length by breadth score of approximately 960 and a barb-tang combination BG. (Fig. IV.73, Nos, 1 and 13).

The Lanchester Common arrowhead (F99) was a stray find which was fortunately illustrated (Anon., 1861, 60). However, as there is no way of checking the scale of the published drawing, no attempt has been made to classify it using Green's typology. It appears to have been complete, and to have possessed both squared barbs and tang. (Fig. IV.58, No. 9).

Extant Finds

Of the extant finds, nine come from the dale, one comes from the middle Wear and three come from the lower Wear/coast area. Information on flint type is available for twelve of these finds. That from the Heathery Burn Cave, now in the British Museum (Inventaria Archaeologia, 1968, G.B.55, 10(10), 185) was not seen by the writer.

Ten of the extant finds are in grey flint while two, that from Dodd Hill (F78) (Fig. IV.57, No. 4) and the fragment from East Newlandside (F79) (Fig. IV.57, No. 6) exhibit total white patination. None retain cortex.

The examples from the flint scatters at East Newlandside and Police Field (F126) (Fig. IV.71, No. 11), are very fragmentary and are impossible to classify. The East Newlandside piece is recognisably a broken barb, while the Police Field example is only really just over a third of an arrowhead, missing both a barb and a large part of the upper blade and tip. The remaining fragment does, however, provide the piece with a barb length/tang length ratio of 0.3 and shows that overall it may have been very finely pressure flaked.

Of the remainder, those from Dodd Hill (F78) (Fig. IV.57, No. 4), Hamsterley (F85) (Fig. IV.57, No.12), Rookhope, Redburn Common (F127) (Fig. IV.73, No. 14), Hesledon Dene (F89) (Fig. IV.58, No. 1) and Heathery Burn Cave (F88) (Fig. IV.57, No. 15), all show very fine pressure flaking all over both faces. Those from Finchale Nab (F122) (Fig. IV.65, No. 15), Beckside, Hamsterley (F87) (Fig. IV.57, No. 14), Park Mine Killhope (F98) (Fig. IV.58, No. 8), Eastgate (F80) (Fig. IV.57, No. 10), Grindon (F83) (Fig. IV.57, No. 11) and Marsden (F102) (Fig. IV.59, No. 1), have only been finely worked on their cutting edges. All of these, with the exception of that from Finchale Nab, are stray finds.

Due to breakages and edge damage it has only proved possible to classify four of the above finds on the basis of Green's typology. The table below shows the results of the classification.

Location & Fig. No.	Length/ breadth score	barb length/ tang length ratio	barb/tang combination	Green's type
Finchale Nab (F122), (Fig. IV.65, No. 15)	459	0.6	AG	Sutton c
Heathery Burn (F88) (Fig. IV.57, No. 15)	600	0.75	AH	Kilmarnock
Hamsterley (F85) (Fig. IV.57, No. 12)	1260	0.19	?BE	Sutton a
Beckside, Hamsterley (F87) (Fig. IV.57, No.14)	1134	0.5	BG	Sutton b

Table IV.14 Classification of barbed and tanged arrowheads (after Green, 1980, 49-51)

As Green has shown the Sutton Type arrowhead is fairly common throughout Britain (1980, 119). Finds of Kilmarnock arrowheads, although rare outside Scotland, are limited to the north of England, Ireland and Wales (Green, 1980, 119) and as a result, the Heathery Burn find is not out of place. In terms of general chronology, Green has shown that the Sutton type spans, "the full chronological and cultural span of the occurrence of barbed and tanged arrowheads", occurring with particular frequency in Beaker graves (Green, 1980, 138). Kilmarnock type arrowheads, however, do not occur in Beaker contexts, major associations being with Urns, and Green has concluded that, "Kilmarnock arrowheads are an explicitly Early Bronze Age/Earlier Middle Bronze Age type with a time span from Wessex I (fifteenth century b.c.) at the earliest to around 1000 b.c." (1980, 141). The finding of a possible example in association with a Later Bronxe Age metalwork hoard is worthy of note here.

In a general context, over 77% of all barbed and tanged arrowhead finds examined by Green from the north of England (Durham, Cumbria, Northumberland) are of Sutton type and over 60% of this total are of Sutton Type b (Green, 1980, 240-241, Tables VI1 and VI2). Examination of stray finds from Co. Durham, not seen by Green, would certainly bear out this common occurrence. Those illustrated by Trechmann, from Horden (1905, 3; pl. XXVI), would all fall into the general Sutton class, while finds from Blackton in Teesdale (Trechmann, 1912, 83, pl. III), Hamburgh Castle, Northumberland (Trechmann, 1912, 85; pl. VI, No. 15) and Crimdon Dene (Raistrick et al., 1935, 208-209, Fig. 1, No. 19) can be similarly classified. The Sutton type would also seem to be common among scatters located in Cumbria, as at Eskmeals (Cherry, 1963, 31-52, 42, Fig. 5, B15, B39, B17 and A4).

Green's work has now provided northern flint collectors and field workers with a ready methodology for the classification of their arrowhead finds. The previous section has shown the lack of published comparanda for the north in general and it is to be hoped that more detailed work can now be undertaken using Green's guidelines.

MICROLITHS

Some sixty three microliths have been recorded in twenty one of the Mesolithic and Mixed flint assemblages from the study area, six Mixed sites producing twenty five implements and fifteen Mesolithic sites producing thirty eight. As the breakdown below shows, by far the largest number, forty nine examples, (77.77% of the total), comes from the upper dale:

Area	No.	% of total finds	No. of sites Mesolithic	No. of sites Mixed
Upper Dale	49	77.77	11	4
Lower Dale	1	1.58	-	1
Middle Wear	9	14.28	2	1
Lower Wear/Coast	4	6.34	2	-
Total	63	99.9	15	6

Table IV.15 Distribution of microliths within the study area

Of this total number of finds thirty four (53.9%) are now lost or could not be traced by the writer, though it is fortunate that metrical information survives for at least twelve examples (Bell's Quarry (F4), five examples; Flinty Field (F123), one example; Howel John, West Field (F125), three examples; Old Durham (F45), three examples).

Of the twenty eight extant implements, twenty two are in grey flint, one is in honey coloured flint and five show total white patination. One example retains a small patch of buff/brown cortex and one shows incipient white patination.

Classification of Microlith Types

Clark (1934) was the first person to put forward a detailed classification system for the microlith element of Mesolithic tool kits. This detailed classificatory work has since been developed both in

Britain and on the Continent (e.g. Laplace-Jauretche, 1954; Bohmers, 1956 and 1960; de Sonneville Bordes, 1960; Brezillon, 1968; Palmer, 1977, 20-23; Jacobi, 1978a,15-16; Switsur and Jacobi, 1979, 41-44). Very intricate schemes of microlith classification, based on shape and size, have been evolved and while these may be aesthetically pleasing when drawn out on paper, they have proved difficult to use in the field. A similar point was made by Radley who found existing schemes of classification a hindrance to the discussion of his Yorkshire material (1970, 314). He was, equally, well aware of the problems caused by attempts at detailed subdivision of types when speaking of his own classification, "This sub-division tends to obscure an important point: most of these forms grade into each other .... so that rods with parallel sides may taper at one or both ends to form a Sauveterrian point, and an angle added to one side makes a triangle...." (Radley, 1970, 319). Taking these remarks to heart the writer has sought to simplify the classification of these implements in this study. Eight basic categories with subdivisions have been identified as shown in Table IV.16.

1a. Isosceles Triangles.

The Bell's Quarry example is 19 mm long and 9 mm wide from base to apex. Thus it easily falls within Switsur and Jacobi's 'broad' microlith class (1979, 41). Such forms as this find ready parallels among Earlier Mesolithic assemblages of northern Britain, e.g. Star Carr, N. Yorks, (Clark, 1954, 101, Fig. 35, 39-41; 102) Pointed Stone, N. Yorks (Jacobi, 1978, 313, Fig. 7), Staple Crag, Teesdale (Coggins and Young, in preparation). However, the writer attaches no great significance to this as the find is clearly associated with a body of microliths which,on typological grounds may be placed in a later Mesolithic context (see below). It may be though, that the site is similar to that at Filpoke Beacon, near Easington, just outside the study area, on the limestone (NZ 475 375) (Coupland, 1948; Jacobi, 1976a,73). Here two possible obliquely blunted points were associated with a typologically Later Mesolithic assemblage dominated by

FORM	SUB-DIVISIONS	EXAMPLES	TOTAL
1. TRIANGLES	a) Isosceles	1, Bell's Quarry (F4) (Fig. IV.41, No. 1).	1
	b) Scalene	1, Cambokeels (F7) (Fig. IV.44, No. 5).	1
		2, Howel John, West (F125) (Fig. IV.69, Nos. 20, 21). (inc. 1 example now lost) 1, Wellhope (F65) (Fig. IV.53, No. 12).	4
2. ROD FORMS & VARIANTS	a) Left edge retouched	1, Evenwood (F21) (Fig. IV.63. No. 9). 1, Flinty Field (F123) (Fig. IV.68, No. 7). 1, Greenhead (F124) (Fig. IV.68, No. 24). 2, Howel John West (F125) Fig. IV.69, Nos. 18, 19). (incl.1 example now lost) 1, Old Durham (F45) (Fig. IV.50, No. 12). 3, Police Field (F126) (Fig. IV.71, Nos. 13, 14, 15). 1, Howel John East (F30) (Fig. IV.47, No. 12).	10
	b) Right edge retouched	1, Bell's Quarry (F4) (Fig. IV.41, No. 2). 1, Cragside (F8) (Fig. IV.44, No. 7). 1, Flinty Field (F123) (Fig. IV.68, No. 9).	3
	c) Both edges retouched	3, Bell's Quarry (F4) (Fig. IV.41, Nos. 3, 4, 5). (all now lost) 1, Police Field (F126) (Fig. IV.71, No. 16).	4
	d) Left edge and distal end retouched	1, Police Field (F126) (Fig. IV.71, No. 17).	1
	e) Right edge and bulbar end retouched	1, Bell's Quarry (F4) (Fig. IV.41, No. 2). 1, Police Field (F126) (Fig. IV.71, No. 18).	2

Table IV.16 Classification of microlith forms within the study area

FORM	SUB-DIVISIONS	EXAMPLES	TOTAL
	f) Sub-rectangular blade segments retouched all round	1, Old Durham (F45) (Fig. IV.50, No.13). 1, Police Field (F126) (Fig. IV.71, No. 19).	2
3. SMALL NEEDLE POINTS	a) Left edge, bulbar end retouched	1, Flinty Field (F12) (Fig. IV.68, No. 10). (now lost) 2, Howel John, West (F123) Fig. IV.69, Nos. 22, 23). (incl. 1 now lost) 1, Police Field (F126) (Fig. IV.71, No. 20).	4
4. LARGE POINTS	a) Steeply retouched on right edge, obliquely retouched on left	1, Police Field (F126) (Fig. IV.71, No. 21).	1
5. MICRO-TRAPEZE	a) Steeply retouched at both ends and left edge	1, Bell's Quarry (F4) (Fig. IV.41, No. 6). (now lost)	1
6. CRESCENT	a) Retouched on arc and chord	1, Eastgate pipeline (F10) (Fig. IV.44, No. 18).	1
7. OBLIQUELY BLUNTED POINTS	a) Obliquely blunted on left side	1, Coast between Sunderland and Ryhope (F51) (Fig. IV.52, No. 1).	1
8. UNFINISHED	a) Some retouch right edge	1, Bell's Quarry (F4) (Fig. IV.41, No. 7).	1
	b) Steep retouch on left edge, notch on right	1 Flinty Field (F123) (Fig. IV.68, No. 8).	1

Table IV.16 Classification of microlith forms within the study area (cont.)

rod forms and scalene triangles and a deposit of burnt hazel nut shells, yielding a C^{14} date of 6810±140 bc (Q 1474), thus making it the earliest dated Later Mesolithic assemblage so far recovered in Britain. It may be that the Bell's Quarry site is of a similar early date within the Later Mesolithic, though obviously without excavation and C^{14} dating this must remain speculative.

1b - 6. Scalene Triangles, Rod Forms and Variants, Small 'Needle' Points, Large Points, Micro-Trapezes and Crescents

All of these forms fit into Later Mesolithic contexts on the basis of typological comparison with artefacts from closely dated sites elsewhere in the north of England, e.g. Filpoke Beacon (see above); Broomhead, Site V, Yorks.,6620±110 bc (Q 800); Ickornshaw Moor, Yorks., 6150±150 bc (Q707) (Radley, Switsur and Tallis, 1974, 1-19); Thorpe Common, Yorks.,4483±115 bc (Q 1116), 3730±150 bc (Q 1118) (Mellars, 1974, 89) and Dunford Bridge, Yorks.,3430±80 bc (Q799) (Radley, Switsur and Tallis, 1974, 1-19).

Similarly, many undated sites in the north provide a comparable microlith repertoire e.g. White Gill, Yorks.(Radley, 1970, 318-320 and further sites therein), Crimdon Dene, Durham (Raistrick and Westoll, 1933, 139-144; Raistrick et al., 1935, 207-216), sites around St. Bees, Cumbria (Cherry and Cherry, 1973, 47-66) and Barsalloch, Wigtownshire (Cormack, 1970, 63-80),to name but a few.

Indeed, when one considers the range and number of microliths recovered from other sites,the paucity of the Wear Valley sample becomes strikingly obvious e.g. White Gill, 837 examples (Radley, 1970, 319), Crimdon Dene "over 100" (Raistrick et al., 1935, 208).

7. Obliquely Blunted Points

The one example recorded may well come from a site discovered Coupland in the 1920's and excavated by him in 1932. The site was on the cliff edge at approximately NZ 418 529 and has now collapsed into the sea (Coupland, 1925; Raistrick, 1933a, 188-198). Again, as with the isosceles triangle from Bell's Quarry, this form is classed as being archetypically of Early Mesolithic date, and similar examples can be found on sites quoted above in connection with the Bell's Quarry find.

A detailed discussion of the chronological range of all the implement types noted above can be found in Switsur and Jacobi (1979, 41-68).

8. Unfinished Microlith Forms

The two unfinished examples from Bell's Quarry and Flinty Field are of some interest. The former is a blade segment with retouch on its right edge, while the latter has very steep, blunting retouch on its left edge and a notch on the right edge towards the tip. This may be evidence for the use of the micro-burin technique of microlith manufacture at the Flinty Field site.

In general, all of the above mentioned, completed, forms would be classed as projectile points, utilised as armatures in composite arrow or spearheads. While this is a logical interpretation based on hafted finds recovered from the Continent, alternative views should be borne in mind. To this end, Clarke's 1976 paper is instructive (1976, 449-81) in that he suggests several alternative functions for microliths, linked not only with hunting but with gathering and food preparation.

In addition to the material discussed above, it was stated earlier that thirty four examples are now lost or cannot be traced. For twenty-two of these we have no further information at all. These examples come from the sites shown in Table IV.17.

Denticulated Blades/Saws

Thirty three examples, either fragmentary or complete, were recorded from thirteen sites, with six Mixed sites producing nineteen examples and seven Mesolithic sites producing fourteen examples. Again, the largest number comes from the upper dale as the table below shows, (Table IV.18). Of this total, one example, that from Finchale, Priory

Site	No.	Source of Information
Frankland Bend NZ 270 420 (F17)	1	Wymer and Bonsall (eds), 1977, 79
Finchale Nab NZ 297 473 (F122)	3	Preston, 1933; two examples not traced at Museum of Antiquities, Newcastle
Northgate NY 935 401 (F40)	2	D. Coggins, pers. comm.
Billing Shield NY 950 380 (F5)	1	Wymer and Bonsall (eds), 1977, 84; not seen at Bowes Museum
Wager Head NZ 012 337 (F63)	8	Bennett-Gibbs and Temperley, 1931
Wellhope NY 835 416 (F65)	2	Wymer and Bonsall (eds), 1977, 86; W. Dodds, pers. comm.
Whitfield Brow NZ 006 343 (F128)	2	Bennett-Gibbs and Temperley, 1931
Ryhope NZ 418 529 (F50)	3	Coupland, 1925; Raistrick, 1933a, 188-198

Table IV.17 Sites producing microliths which are now lost

Area	No.	% total finds	No. of sites Mesolithic	Mixed
Upper Dale	18	54.54	5	3
Lower Dale	5	15.15	-	1
Middle Wear	10	30.30	2	2
Lower Wear	-	-	-	-
Total	33	99.99	7	6

Table IV.18 Distribution of denticulated blades/saws within the study area

Farm (F15) in the middle Wear cannot now be traced (Preston, 1929, 139). Twenty nine of the extant examples are in grey flint and one each in golden brown, red-brown and fawn brown flint respectively. One retains hard, pitted, grey, pebble cortex, while two retain hard, pitted, white, pebble cortex.

Complete blades and flakes account for eleven of the extant examples which range in length from 18 mm to 54 mm with an average length of 34.6 mm and from 5 mm to 30 mm in breadth with an average breadth of 14.6 mm. Six examples are serrated on the left edge, Billing Shield, (F5), (Fig. IV.42, No. 15), Frankland Wood (F19), (not illustrated), Binchester (F119), (Fig. IV.61, No. 17), Evenwood (F121), (Fig. IV.63, Nos. 13, 14) and Finchale Nab (F122), (Fig. IV.66, No. 4). Of these, the examples from Binchester and Finchale Nab show blunting retouch on the right edge. Three finds, those from Bell's Quarry (F4), (Fig. IV.41, No. 8), Billing Shield (Fig. IV.42, No. 11) and Evenwood (F121) (Fig. IV.63, No. 12), exhibit denticulations on the right edge and that from Evenwood also has evidence for utilisation on its left edge. A further two examples from Evenwood are serrated down both edges (Fig. IV.63, Nos. 10 and 11) while one piece from Bell's Quarry (Fig. IV.41, No. 9) exhibits denticulations across its distal end. No doubt blade/flake size and the coarseness of denticulation etc. is ultimately linked with tool function, whether it be wood, bone, sinew or skin working. Further research on this material, using micro-wear study techniques, would be desirable, as it would be on the further seven examples which occur on blade segments, (F5) (Fig.IV.42, No. 14), (F122) (Fig. IV.66, Nos. 1, and 4), (F125) (Fig. IV.69, Nos. 24 and 25), (F126)(Fig. IV.71, No. 22) and (F49) (Fig. IV.59, No. 4). All, with the exception of F122 (Fig. IV.66, No. 4), are serrated on the right edge and three, (F5) (Fig. IV.42, No. 14) and (F122) (Fig. IV.66, Nos. 1 and 4) show either blunting retouch or evidence for utilisation on the opposing edge. These may well be small, individual, elements of larger, composite, saws/knives and the retouch/utilisation marks visible on three of the examples may well have been carried out to facilitate the hafting of the pieces into wood or bone handles.

The remainder of the saws recorded are on broken flakes or are represented by the presence of serration/denticulations on the edges of pieces which have obviously broken off larger implements.

As Mellars (1976, 387, Table 2) has shown, saws are not common on northern Mesolithic sites. In the Wear Valley the Mesolithic site at Billing Shield (F5), in the upper dale, with six examples and the Mixed sites of Evenwood (F121), in the lower dale, with five examples and Finchale Hab (F122), in the middle Wear, with seven examples, stand out. As will be seen from the Inventory entries and Table X.2, these sites also exhibit an emphasis on other food/raw material preparation tools in their flint assemblages.

Burins/Gravers

Eight extant burins have been recorded from six sites in the study area. The Mesolithic sites of Billing Shield (F5) and Wellhope (F65) in the upper dale have produced two examples (Fig. IV.43, No. 1); Fig. IV.53, No. 13) while the Old Durham site (F45), in the middle Wear has produced a third (Fig. IV.50, No. 14). The Mixed sites of Police Field (F126) and Finchale Nab (F122), in the dale and middle Wear, have produced one and two examples respectively (Fig. IV.71, No. 24 and Fig. IV.66, No. 5 and 6). while two further burins have been recorded in the Neolithic/ Bronze Age assemblages from Westernhope Burn (F116) in the upper dale (Fig. IV.59, No. 8 and Fig. IV.60, No. 11).

Five examples are in grey flint and two exhibit total white patination. Six retain cortex to a greater or lesser degree, two hard, pitted, grey, pebble cortex; three, buff, pitted pebble cortex and one retains hard, fawn, pitted cortex.

Six examples are on flakes ranging from 17 mm to 47 mm in length with an average length of 30 mm and from 9 mm to 24 mm in breadth, with an average breadth of 16.6 mm. Again, the varying size of flakes probably represents a conscious choice by the manufacturers of certain flakes for certain tasks. Three of the six flake examples have had only one burin spall removed to create the cutting edge,while that from Finchale Nab (F122) (Fig.IV.66, No. 6)exhibits four burin facets, the example from Old Durham (F45) (Fig.IV.50,No.14) exhibits two, and the burin from Wellhope (F65) (Fig.IV.53, No.13)exhibits one burin facet on each edge of the flake at the bulbar end. The Billing Shield example (Fig.IV.43, No. 1) is on one end of a small, irregular,lump of flint,while that from Westernhope Burn (F116) (Fig.IV.59, No.8) is of some interest in that it represents the only example of a core burin from the valley.

In the north of England,with the exception of the Early Mesolithic site at Star Carr, burins do not tend to occur regularly or in large numbers in Mesolithic flint assemblages. Mellars (1976, 387, Table 2), has dealt in detail with what he terms the frequencies of "principal tool forms and waste products" in British Mesolithic assemblages. These frequencies of occurrence are expressed as percentages of what he terms the "essential" tool inventory which comprises of microliths, scrapers, burins, saws and transversely sharpened axes. Using this criterion it is possible to arrive at the following figures for the Wear Valley sample:

Site	No. of Burins	% of "essential" tools
Billing Shield	1	11
Finchale Nab	2	8
Old Durham	1	14
Police Field	1	5.5
Wellhope	1	14

Table IV.19 Number of burins expressed as a percentage of "essential" tools for five sites in the Wear Valley.

A comparison with the following figures for burins from other northern surface scatters (from Mellars, 1976, 387, Table 2) shows the Wear Valley figures to be consistently higher in most cases.

Site	No. of Burins	% of "essential" tools
Brigham, Yorks.(E. Meso.)	14	9.9
Sandbeds, Otley, Yorks., (E. Meso.)	45	26.3
Windy Hill 5, Lancs.	2	2.9
White Gill, Yorks.	6	0.7
Upleatham 1, Yorks.	4	7.0
Mauley Cross, Yorks.	2	0.8
Lyne Hill, Northumberland	6	5.6
Farndale Moor, Yorks.	3	4.5

Table IV.20 Numbers of burins from northern surface scatters, expressed as a percentage of "essential" tools from each site.

It should be borne in mind, though, that these differences may reflect nothing more than the sampling bias inherent in all collections of surface derived material.

At first sight the two burins/gravers from Westernhope Burn may seem anomalous in a Neolithic/Bronze Age flint assemblage. However, Cowling's work in Mid-Wharfdale (1976, 27-74) has shown that their occurrence is not necessarily out of place.

Borers/Awls

Palmer (1977, 37) has attempted to differentiate between borers and awls when they occur in Mesolithic flint assemblages, however, the present writer cannot agree with her criteria for this distinction and, as a result, no attempt has been made to distinguish between the two forms here.

Twenty four examples have come from eleven sites in the study area as follows:

Area	No.	% of finds	No. of sites Meso.	No. of sites Neo/BA	No. of sites Mixed
Upper Dale	18	75.00	3	-	4
Lower Dale	1	4.16	1	-	-
Middle Wear	5	20.83	2	-	1
Lower Wear/coast	-	-	-	-	-
Total	24	99.9	6	-	5

Table IV.21 Distribution of borers/awls within the study area

Of this total, one example from Police Field (F126) (Fig. IV.72, No. 1) is now lost, but was illustrated by Fell (Fell and Hildyard, 1953, 107, Fig. 3, No. 8). Seventeen extant examples are in grey flint, one in fawn/white flint and one each in dark brown and red/brown flint respectively. One example is wholly white patinated and one is wholly fawn patinated, while one example from Howel John West Field (F125) (Fig. IV.69, No.27) exhibits total white patination but was retouched after patination had begun. Only three examples retain cortex, two exhibit hard, grey, pebble cortex and one buff, pebble cortex.

As a total sample, borers/awls range from 16 mm to 43 mm in length with an average length of 22.4 mm and in breadth from 10 mm to 38 mm with an average breadth of 17.2 mm. Fig. IV.75(a) shows length measurements plotted against breadth measurements for the whole sample. This could be interpreted as showing that a major emphasis was on producing small implements (eleven examples are less than 20 mm long and 20 mm wide), but that larger, piercing, tools were also used. If the implements were used predominantly for leather/skin working then this would be the expected situation, with the smaller implements being used to make the initial perforations and progressively larger tools being used to create larger holes in the material being worked. When data for tools from Mesolithic and Mixed assemblages are plotted separately, Fig.IV.75, b and c), it can be clearly seen that the real extremes in borer size manifest themselves in the Mixed material. Whether this is an indication that more wide ranging tasks were carried out at these sites or whether it is merely a function of the fact that the Mixed sites have received more attention from fieldworkers than some of the smaller Mesolithic sites, thus producing a wide range of implement types, is open to debate.

RETOUCHED KNIVES

Fourteen examples of retouched knives have been recorded from the study area. Twelve retouched flake/blade examples come from nine lithic scatters (F5, F10, F15, F24, F40, F116, F119, F121, F127) while two examples, those from Killhope (F96) (Fig.IV.58,No.7), in the dale, and Washington (F114)(Fig.IV.59, No.4),in the lower Wear, are stray finds found in seeming isolation.

The examples from lithic scatters will be dealt with first, with five Mesolithic sites producing six examples, one example coming from the Neolithic/Bronze Age site of Westernhope Burn (F116) and five examples coming from three Mixed sites. The distribution of finds and sites within the valley is as follows:

Area	No. of finds	% of total finds	No. of sites Meso.	Neo/BA	Mixed
Upper Dale	5	41.66	2	1	1
Lower Dale	3	25.00	-	-	1
Middle Wear	3	25.00	2	-	1
Lower Wear	1	8.33	1	-	-
Total	12	99.99	5	1	3

Table IV.22 Distribution of retouched knives within the study area

Of this total, seven are in varying shades of grey flint, two are in red brown flint one is in fawn brown/honey coloured flint, and two exhibit total white patination. One example shows incipient white patination,while three retain hard white, soft,chalky,white and hard, fawn, cortex respectively.

Eight examples are complete with one being broken transversely at its bulbar end, two being transversely broken at the distal end and one example being broken at both ends. In terms of size, complete examples range from 37.5 mm to 54 mm in length, with an average length of 46.00 mm and from 11 mm to 28 mm in breadth, with an average breadty of 19.37 mm. Working edges have been formed by steep retouch on one or both sides of the flakes/blades. Two examples are worthy of comment. That from Billing Shield (F5) (Fig.IV.43, No.3) exhibits heavy polish on its edges which may be from use and the example from Finchale Banks (F12) (Fig.IV.45 No. 8) exhibits inverse retouch on its left edge. Reference to relevant sections of the Inventory will show that the rest of the knives recovered would not be out of place in any Mesolithic or Neolithic/Bronze Age assemblage in northern England.

The Stray Finds

In many ways these two examples are of much more intrinsic interest than those discussed above. The Killhope example (F96) (Fig.IV.58, No.7) was recovered by Mr. W. Dodds and is now in Sunderland Museum (Accession No. 233, 1972). It is a very large flake measuring 11 mm x 37 mm and 8 mm thick and has been finely retouched down its right edge which shows little other sign of utilisation. In general the piece is in excellent condition. However, by far the strangest find is what can only be described as a flint 'dagger' from Washington (F114) (FigIV.59, No. 4). This looks like a flint copy of a metal implement having been very finely manufactured on a large piece of grey flint. As can be seen from the illustration it possesses a rounded hilt with a slight pommel, giving rise to a flat sectioned blade which tapers from the hilt to the point, which has been broken off transversely to the implement's long axis. The piece retains some buff pitted cortex in places. No information about its discovery is available, and the piece, which is now in Sunderland Museum, possesses to Accessions Number. It has not proved possible to parallel the dagger with any degree of closeness. The nearest parallels one might cite are the flint daggers, copying metal prototypes, found with some Beaker burials e.g. Alsop Moor, Derbys., Garton Slack, Yorks. and Acklam Wold, Yorks. (Clarke, 1970, 374, Nos. 776, 778, 780), Lilburn Steads Northumberland (Clarke, 1970, 379, No. 816) and Middleton on the Wolds, Yorks. (Clarke, 1970, 386, No. 876). However, in all the cases cited the blades are broader than that of the Washington example, and in no instance is the hilt rounded. This does raise the possibility that the find may be either a fake or recent import from abroad which was lost. However, in the absence of any proof to the contrary, the piece is included here.

In terms of function, the flake/blade examples discussed above and the knife from Killhope were probably designed for a variety of tasks, such as wood, bone, skin and possibly antler working as well as skinning and the cutting up of meat, though unworked flakes and blades could be used with equal efficiency for these jobs. A microwear study of all working edges on these implements would be desirable in order to advance this discussion further.

Notched Flakes/Blades

Twenty eight examples have come from eleven Mesolithic and Mixed sites in the study area, with six Mesolithic sites producing seven examples and five Mixed sites producing twenty one examples. As the table below indicates the greatest number comes from the upper dale area.

Area	No. of finds	% total finds	No. of Sites Meso.	No. of Sites Mixed
Upper Dale	21	75	4	2
Lower Dale	2	7.14	-	1
Middle Wear	5	17.85	2	2
Lower Wear	-	-	-	-
Total	28	99.9	6	5

Table IV.23 Distribution of notched flakes/blades within the study area

Three of the total are now lost, one example from Bell's Quarry (F4) and two from Howel John West Field (F125). However, all were illustrated by Fell (Fell and Hildyard, 1953, 103, Fig. 1, No. 12, 108, Fig. 4, Nos. 16 and 17).

Of the twenty five extant examples, twenty one are in varying shades of grey flint,while two show total white patination and one total fawn/cream patination. Three examples exhibit partial/incipient white patination, while three also retain grey, grey-brown and buff, pebble cortex respectively.

Six examples may have received their notches in the course of microlith production, using the micro-burin technique. All exhibit steep, marked retouch. These are the pieces from Bell's Quarry (F4) (not illustrated) now lost, Billing Shield (F5) (Fig.IV.43, No.4), Howel John West Field (F125) (Fig.IV.69, Nos.28 and 29) now lost, Old Durham (F45) (Fig.IV.50,No.16) and Police Field (F126) (Fig.IV.72, No.7). The remaining twenty two examples from Billing Shield (F5), Cragside (F8), Frankland

Wood (F19), Quarry Hill (F49), Binchester (F119), Evenwood (F121), Finchale Nab (F122), Howel John West Field (F125) and Police Field (F126), all seem to have been intentionally notched as specific tool forms. Notch size varies from piece to piece as the shallow notch on the example from Police Field (Fig. IV.72, No.8) and the very marked notches on the blades/ flakes from Binchester (Fig. IV.62.No.2) and Finchale Nab (Fig. IV.66,No.10) indicate. Double notches are visible on examples from Billing Shield (Fig. IV.43,No. 4), Binchester (Fig.IV.62,No. 3) and Finchale Nab (Fig.IV.66, No. 10).

Of the twenty two extant notched flakes/blades which may have been used as tools, fourteen are on complete flakes/blades and eight are on broken examples. The complete flakes range from 19 mm to 48 mm in length with an average length of 30.6 mm and from 10 mm to 27 mm in breadth with an average breadth of 14.9 mm.

In terms of function these implements may have been used as a form of hollow scraper for woodworking (? like a spoke shave) or the preparation of arrow shafts. Similarly, they could have been used as shredders in the preparation of plant food, especially roots and tubers. Cormack, in his analysis of the flint industry from Barsalloch, Wigtownshire (1970, 80), has suggested that notched flakes and blades may have been part of the tool kit appropriate to groups who were manufacturing wicker or basketry fish traps. If this is the case then their occurrence in some number at sites such as Howel John West Field and Police Field, located on the gravel terraces of the upper Wear, close by the river, may take on added significance. The possible importance of fish in the later Mesolithic economy of the valley is discussed below in Chapter X.

Notched flakes/blades also occur in the upland Mesolithic assemblages of Yorkshire (Radley, 1970, 314-324) and several occur in the Northumberland material collected by Weyman (J. Weyman pers. comm.). Mulholland notes their occurrence further north in the Tweed Valley and she too has recorded the existence of different types of notched flakes/ blades concluding that two main categories occur: (a) those with a hafting notch or notches and (b) those with a notch designed for use, as in spokeshaves. Notched pieces resulting from microlith manufacture have also been recorded (Mulholland, 1970, 86-89, Figs. 5 and 6).

Hammerstones

(N.B. Only complete examples are included here, fragments from nodules which exhibit battering and abraison are not included.)

Only eighteen, definite, complete,hammerstones, exhibiting crushing, bruising and numerous small,overlapping,flake scars due to a hitting or tapping motion, have been identified in the collections of material from the study area. Again these implements are an element of northern flint assemblages which have received little study. As the table below shows, the largest number come from the upper dale.

Area	No.	% of total finds	No. of sites		
			Meso.	Neo/BA	Mixed
Upper Dale	11	61.11	7	1	1
Lower Dale	1	5.55	1	-	-
Middle Wear	5	27.77	-	-	3
Lower Wear/Coast	1	5.55	1	-	-
Total	18	99.9	9	1	4

Table IV.24 Distribution of hammerstones within the study area

All, with the exception of the finds from Eastgate House (F11) which is burnt and that from Monk Wearmouth (F38) which is in ginger/brown flint, are clearly of varying shades of grey flint and all, with the exception of the two examples already noted and the piece from Allotment Plantation (F2),retain cortex to a greater or lesser degree. This can be broken down as follows:

Cortex Colour and Type	No.	% of finds retaining cortex
Hard, pitted, grey, pebble cortex	3	20.00
Hard, pitted, fawn, pebble cortex	2	13.33
Hard, pitted, buff, pebble cortex	4	26.66
Hard, pitted, buff/grey, pebble cortex	1	6.66
Hard, pitted, white, pebble cortex	2	13.33
Soft, white chalk, cortex	3	20.00
Total	15	99.9

Table IV.25 Classification of cortex colour and type visible on hammerstones within the study area

Eleven examples are simply nodules of flint which seem to have been used for no other purpose but as hammers, while seven have also seen service as cores at some stage in the period of utilisation. It is difficult to tell in these cases, whether the implement was used as a hammerstone after its effective usefulness as a core was ended or whether the utilisation as a hammer was merely one stage of use that took place while the lump was still serving as a source of flakes and/or blades. Indeed, the core from Allotment Plantation (F2) had a varied working history being used as a core, modified into a core scraper and also utilised as a hammer.

Nodules utilised as hammers are much larger than the cores, ranging in length from 28 mm to 64 mm with an average length of 43.5 mm and in breadth from 15 mm to 50 mm with an average breadth of 33.1 mm. In terms of weight they range from 34.2 gms to 150.9 gms with an average weight of 76.7 gms. Cores range from 31 mm to 40 mm in length with an average length of 35.5 mm and in breadth from 22 mm to 34 mm with an average breadth of 27.8 mm. In terms of weight the cores range from

14.6 gms to 39.1 gms with an average weight of 24.9 gms. The sample is not large enough to consider any differences in size which may exist between upland and lowland sites.

These implements may well have been used in the manufacture of lithic implements and one of the larger nodules from Finchale Nab (F122) may have served as an anvil stone as well as a hammer, exhibiting as it does several flat surfaces with conchoidal pitting and some crushing (Fig.IV.66, No.11). They may also have been used to pound and grind vegetable food and to break open animal bones to allow the collection of bone marrow. In this context artefact size and function may be intricately linked. Experimental work to try and replicate battering/ crushing marks may well prove a useful method of examining hammer function more closely.

No comparable data was available from northern published sources. As a result, this discussion must stand by itself in the hope that future work will allow it to be set in a broader context.

Microburins

Twelve examples have been recorded from the study area; all, with the exception of the two examples from Old Durham (F45) in the middle Wear, are from the upper dale. Two examples, those from Howel John West Field (F125) (Fig.IV.70, No.1) and Bell's Quarry (F4) (Fig.IV.41, No.14) are now lost, but both were illustrated by Fell (Fell and Hildyard, 1953, 109, Fig. 4, No. 15; 103, Fig. 1, No. 11). Of the ten surviving examples, nine are in grey flint while one from Howel John East Field is totally white patinated (F30) (Fig.IV.47, No.13). All are notched on the left hand side and can be classified as follows:

LEFT HAND SIDE NOTCHED:	BUTT	9
	TIP	3

('Butt' here refers to the bulbar end of a flake; 'tip' refers to the distal end).

	EARLIER MESOLITHIC			LATER MESOLITHIC	
Site	Ratio	Refs.	Site	Ratio	Refs.
Star Carr (Yorks.)	1 : 16	Clark, 1964, 103	White Gill (Yorks.)	1 : 16	Radley, 1970, 319
Willoughton (Lincs.)	1 : 5	Jacobi, 1978, 322 Fig. 9	Farndale Moor (Yorks.)	1 : 17	Radley, 1970, 320
Money Howe (Yorks.)	1 : 3.5	Jacobi, 1978, 322 Fig. 9	Upleatham 1 (Yorks.)	1 : 4	Spratt _et al_., 1976, 21
Deepcar (Yorks.)	1.5 : 1	Radley and Mellars, 1964, 8.	Upleatham 2 (Yorks.)	1 : 1.5	Spratt _et al_., 1976, 21
Windy Hill (Yorks.)	1 : 1	Radley and Mellars, 1964, 23-24	Broomhead 5 (Yorks.)	1 : 4	Radley _et al_., 1974, 3
Warcock Hill (Yorks.)	1 : 1.2	Jacobi, 1978, 314, Fig. 8	Dunford Bridge A (Yorks.)	1 : 3	Radley _et al_., 1974, 7
Pointed Stone 2 (Yorks.)	2 : 1	Jacobi, 1978, 314, Fig. 8.	Dunford Bridge B (Yorks.)	1 : 9.5	Radley _et al_., 1974, 5
Pointed Stone 3 (Yorks.)	1.1 : 1	Jacobi, 1978, 314, Fig. 8			
Blubberhouses Moor (Yorks.)	1.6 : 1	Davies, 1963, 63.	Green Crag Slack (Yorks.)	1 : 10	Cowling, 1973, 11

Table IV.26 Ratio of microburins to microliths on Early and Later Mesolithic sites in northern England

The following ratio of microburins to microliths can be observed:

Bell's Quarry (F4)	1 : 7
Cragside (F8)	1 : 1
Howel John West Field (F125)	1 : 6
Howel John East Field (F30)	1 : 1
Old Durham (F45)	1 : 2
Police Field (F126)	1 : 2.5

These figures can be compared with data from Earlier and Later Mesolithic assemblages in the north of England (See Table IV.26).

It can be observed that no great differences occur in the data from either period with the exception of the sites at Deepcar, Pointed Stone 2, Pointed Stone 3 and Blubberhouses Moor where microburins would seem to outnumber microliths. This phenomenon was not observed for any of the published, Later Mesolithic sites which were examined. As such the micro-burin : microlith ratios for the Wear Valley sites are not out of place when compared with other northern sites, though again, it must be borne in mind that all the figures quoted may be biased by differential recovery of such small fragments.

Flint and Chert Pebbles/Nodules

Fifty one complete, unworked, flint pebbles and one unworked chert nodule have been recorded from ten sites in the study area. As Table IV.27 below shows, the largest number comes from the Middle Wear area:

Area	No.	% of total finds	No. of sites		
			Meso.	Neo/BA	Mixed
Upper Dale	9	17.30	3	2	1
Lower Dale	-	-	-	-	-
Middle Wear	43	82.69	2	-	2
Lower Wear	-	-	-	-	-
Total	52	99.99	5	2	3

Table IV.27 Distribution of unworked flint and chert pebbles/nodules within the study area

Obviously these totals may well have been affected by sampling bias, in that some collectors may only have been interested in tools and blades and flakes, disregarding pebbles when they occurred on sites. Conversely it could be argued that the disparity in the number of finds between upland and lowland areas may reflect greater proximity to the main source of supply in the lower part of the valley or a conscious decision on the part of our early prehistoric inhabitants not to take pebbles with them into the uplands, possibly for reasons of bulk in transit. The vast amount of waste material from sites in the dale, including waste flakes and chips which must testify to flint working, and more importantly the many angular, shattered, flint and chert lumps, should warn us against accepting this latter option. It is more than likely that the lack of unworked pebble from upland sites, if it is a 'real' and not sampling induced phenomenon, reflects the distance from a ready source of raw material supply. This would have necessitated working the flint that was taken into the uplands to the utmost degree - in other words the prehistoric occupants of the dale could not afford to leave any workable flint unused. Support for this point may well be derived from the data on cores discussed above which shows that cores in the dale are smaller than those from the middle and lower Wear areas .

All of the pebbles recorded, with the exception of one grey chert nodule from Police Field (F126), are of flint in the following range of colours:

Flint Colour	No.	% of flint pebbles
Grey	46	90%
Fawn	2	4%
Stained orange/fawn	3	6%
Total	51	100%

Table IV.28 Colour range of flint pebbles within the study area

Thus the representation of grey flint among the potential sources of raw material is much more predominant than it is among the cores recovered from the study area.

In terms of size, no statistical differences between material from Mesolithic and Mixed sites could be shown, nor does there seem to be any distinguishable differences between the upper and lower sections of the valley. Pebbles range from 22 mm to 91 mm in length with an average length of 42.4 mm and from 14 mm to 65 mm in breadth with an average breadty of 30.4 mm. Pebble weights range from 6.9 gms to 170.4 gms with an average weight of 46.88 gms. Thus,as would be expected,unworked pebbles are significantly larger than cores from the valley.

Fig. IV.21 illustrates the relationship between average core size and average whole pebble size for six sites in the valley in an effort to show that, on average, reduction of pebbles is greater in the uplands than in the lowlands. This is borne out to some extent by a comparison of the Billing Shield and Police Field data with that from the other sites figured. Two points should be borne in mind here, first that the Finchale Nab site seems to be anomalous in comparison with the other middle Wear sites, and second that the two upland sites have only produced two complete pebbles each.

Waste Material

As might be expected waste material makes up the bulk of nearly all of the flint scatters examined in this survey. This can take many forms such as chips, angular, bashed lumps, irregular fragments, broken flakes and mishits and complete, unworked, flakes. It is not the purpose of this present section to deal with all of the waste material in detail. Individual site entries in the Inventory give a detailed breakdown of all categories of waste from each location. The following discussion will concentrate solely on complete, unworked, waste flakes in an attempt to examine length and breadth data which may facilitate inter-site comparison of waste material from assemblages within the study area. Much useful information relating to changes in knapping techniques through time has been obtained in the south of England by this kind of exercise (Pitts, 1978, 1978a; Pitts and Jacobi, 1979).

Work on waste elements in assemblages was first documented in England by Mace (1959), though probably the best known examination is that carried out by Smith at Windmill Hill (1965, 86-91). In order,"to obtain information about knapping techniques as represented by biproducts",(1965, 86) she recorded the length, breadth and breadth : length ratio of all complete flakes over 10 mm long after the technique derived by Bohmers (1956, 1-5). This data was produced in histogram form and with it Smith was able to indicate a change in working techniques which showed a move from the production of long,narrow,flakes in the earlier Neolithic stages of the site to shorter,more squat,flakes in the later period. Comparison with the Later Neolithic assemblages from the West Kennett Avenue supported her initial hypothesis and since that time other workers have used similar techniques on prehistoric lithic assemblages in the south of England (Wainwright and Longworth, 1971, 156-181; Wainwright, 1979, 139-163) and the histograms pioneered in Smith's work have become an integral part of any large flint report. The work of Pitts and Jacobi,referred to above,has advanced the study of lithic waste material by the application of computer techniques for detailed inter- and intra-site comparison of data. These results are of interest and merit further study.

However, as Pitts was keen to point out (1978, 25),"Any generalisations made relate to southern England. The situation further north may, interestingly be significantly different". Indeed, to the writer's knowledge,no workers on lithic assemblages in the north of England have ever examined the nature of the waste elements of their material in a similar way to those researchers working in the south. Possibly a major reason for this is that most of the northern finds have come from surface collection. Many may think that this means that any form of statistical approach will automatically be invalid due to the possible 'mixing' of material from potentially different periods. However, the writer is of the opinion that such problems are only there to be examined and tackled and it was for this reason that the data presented here was collated. If the validity or invalidity of this kind of approach to our northern data is to be demonstrated then the writer would suggested that further examination of waste material, in order to produce comparable information from other areas, should be carried out. In turn this would allow some of the ideas expressed below to be tested.

In the construction of the diagrams referred to below,all complete,unworked,waste flakes from sites which produced twenty or more examples were included. The measurements were taken in the manner described by Smith (1965, 89). From the outset it may be suggested that in an area where flint is scarce such as the Wear Valley, constraints on the size and shape of flakes (and tools in general) may be imposed by the nature of the raw material used and initial pebble/nodule size. This seems to be the case in the study area though some points are worthy of further comment. In all, only eight sites in the study area produced sufficient waste flakes for analysis. These were the Mesolithic sites of Bell's Quarry (F4) (Figs. IV.24 and IV.25), Billing Shield (F5) (Figs. IV.26 and IV.27), Old Durham (P45)(Figs.IV.28 and 29) and Wellhope (P65) (Figs. IV.30 and IV.31); the Neolithic/Bronze Age site of Westernhope Burn (F116) (Figs. IV.32 and IV.33) and the Mixed sites of Binchester (F119) (Figs. IV.34 and IV.35), Howel John West (F125) (Figs. IV.36 and IV.37) and Police Field (F126) (Figs. IV.38 and IV.39). The data generated has been produced both in scattergram and histogram form, and both show that in the main the emphasis is on the production of short squat flakes. This is especially clear when the sections of the histograms dealing with breadth/length ratio are consulted. Here, a flake has been put into the 'blade' category if it is twice as long as it is broad (e.g. has a breadth/length ratio of 1:2 or greater). Again the presence of unworked flint flakes has not been recorded in detail on published sites. As a result no comparative data from outside the study area is available.

On the Mesolithic diagrams it can be seen that in all instances flakes of blade like proportions account for less than 30% of the assemblages from each site. This figure varies markedly from 9.8.% at Billing Shield to 27.76% at Wellhope. The percentage from Neolithic/ Bronze Age and Mixed sitesfalls well within the range exhibited by the Mesolithic scatters. By way of comparison, at the Crimdon Dene site on the coast, almost 30% (29.62%) of the flakes attained blade like proportions (Figs. IV.22 and IV.23).

Turning to the main body of the waste flakes, the following table, using data extracted from the main histograms, serves to emphasise the fact that short squat flakes predominate:

Site	% of flakes less than 25 mm long	% of flakes less than 15 mm broad	% having breadth/ length ratio of 1:1.5 or less (1½ times longer than broad, or less)
Bell's Quarry	73.07	49.98	49.99
Billing Shield	90.16	76.78	49.95
Old Durham	85.52	69.86	46.14
Wellhope	52.76	49.99	27.7
Westernhope Burn	75.42	58.46	54.37
Binchester	66.65	41.17	58.72
Howel John West Field	90.84	74.84	55.42
Police Field	85.55	71.96	54.52
Crimdon Dene	21.96	23.07	41.75

Table IV.29 Selected metrical data for waste flakes from nine sites within the study area

The Wellhope site is worthy of further comment here for not only has it less flakes below 25 mm in length and 15 mm in breadth than any of the other sites, it also has less flakes with a breadth/length ratio of 1 : 1.5 or less, and more blade like waste flakes. Again, by way of comparison, data from Crimdon Dene is included above to highlight the fact that on the coast unworked flakes may generally be larger when discarded than those in the valley. However, within that larger range of dimensions, over 40% of the Crimdon flakes examined still have a breadth/length ratio of 1 : 1.5 or less.

One general point which might be made from a comparison of percentages for flakes with a breadth/length ratio of 1 : 1.5 or less, is that these are higher on the Mixed and Neolithc/Bronze Age sites than on the Mesolithic sites. If, as has been suggested above, the Mixed sites represent the latest Mesolithic sites in the valley then the figures could be taken as indicating a change in knapping technique at the end of the Mesolithic, resulting in shorter, squatter, flakes than had been produced previously. However, in the absence of more detailed chronological data than tool typology, this suggestion must remain speculative.

With the lack of any comparable published data from other sites in the north-east, that expresse in Figs. IV.22 - IV.39 must stand alone. It is hoped that any future work on northern lithic material will produce a similar analysis of waste flakes, thus building up a body of data similar to that from excavated sites in the south. Only then will it be possible to test the observations made here and make more detailed analyses of changes in knapping techniques.

Potential Sources of the Flint and Chert used in the Wear Valley

The fact that flint does not occur naturally in Co. Durham as a whole, has led many writers to speculate as to the origin of the raw material used in prehistoric artefact assemblages from the area.

A survey, by the present writer, of all government geological surveys and memoirs available for the region, revealed only one reference to flint in the whole county, and that was in the derived context of the Lower Gravels which occupy isolated depressions in the eroded surface of the Permian rocks in the eastern part of the area (Smith and Francis, 1967). It is worth quoting this in full to get some idea of the infrequency with which flint occurs in these deposits.

"At the coast and in the adjacent deep denes, most of these depressions (see above) are only a few yards across and are generally less than 5' across ... By contrast a discontinuous sheet of gravel up to 8' thick extends above rockhead for several hundred yards at Castle Eden Dene. Moreover up to 20' of interbedded sands, gravels and clays filling buried valleys may belong to this subdivision. The Lower Gravels are characterised by a high proportion (commonly 50-60%) of pebbles derived from the local Magnesian Limestone; the remaining pebbles comprise a varied suite of Carboniferous Limestones and Sandstones, red, green and purple lavas, granites, gneises, schists, flints, quartz, quartzite and dolerites" (Smith and Francis, 1967, 203).

Further extensive research produced only two more references to flint within Co. Durham, again both in derived contexts. Woolacott, writing in 1905-6 on "An Exposure of the 100' Raised Beach at Cleadon" (in the lower Wear area), notes the presence of 5-6 feet of irregularly bedded gravels occurring beneath the cultivated soil. The most interesting rocks found in these deposits were, he believed, "rolled flints which have been found on the Trow Rocks, at Whitburn Lizards, Cleadon Village and in the gravel deposits resting against the old sea cliff on Fulwell Hills" (1905-6, 244). He believed this material to have been derived from moraine deposits left by the Scandinavian ice-sheet (1905-6, 245).

Westgate (1957, 37-38) also in a discussion of glacial deposits, which he terms the "Cheviot drift", notes a two fold division of this deposit into:

(a) Stoney boulder clay and

(b) Sand and gravel and water sorted boulder clay.

The sand and gravel manifests itself mainly in the South of Durham, "especially at Elwick, Greatham and Throston", and, "the material is current bedded shelly gravel with flints and pieces of chalk"

(1957, 38). Trechmann believed that this material had been swept inland from an interglacial shore line.

On balance then the occurrence of flint within the superficial deposits of Durham would seem to be infrequent, a point paralleled in Raistrick's work on flint sites in Northumberland (1933a),especially that at Newbiggin-on-Sea where he noted that "the Boulder Clay on the sites contains flint nodules as a <u>rare constituent</u>" (Raistrick, 1933a, 194).

However, W.F. Rankine seems to have been of the opinion (1952, 146-148) that the Lower Boulder Clay or Scandinavian Drift of the north east coast could provide considerable amounts of brown, pink, yellow and black flint. He produced a map (1952, 147, area 3, inset) which showed the location of patches of what he termed the "North Sea Drift" which produced coloured flint of supposed Danish origin.

Fell and Hildyard also believed that this was the source of the flint used in Weardale (1953, 108-110) and quoted Trechmann's 1936 analysis of the origin of the flint found at Crimdon Beck,on the coast, in support of their argument (Trechmann, 1936, 167). Today, the glacial material of the coast is the usual source of flint quoted by local archaeologists and Jacobi has echoed this belief in his recent survey of the British Mesolithic (1976, 31). However, the present writer believes that in the past too much emphasis has been placed on this possible source of supply.

Dr. D. Maling (in lit. to E.J.W. Hildyard, Dec. 1955) disagreed with Fell's suggestions on the origin of the Weardale flint. He believed, as does the present writer, that the drift could not possibly account for all of the flint which has turned up in the area. Pointing out the scarcity of this material (as noted above) and arguing from his own work that no other flint occurs naturally in the drifts of the Wear Valley, he argued that the, "only possible source regions for the flints are:

(i) the Eratics on the Cumberland Coast derived from Antrim

(ii) The Chalk of either the East Riding or Antrim."

The present writer does not believe that Cumbria or Ireland are likely sources for the flint utilised in Durham. The geographical and physical considerations put forward by Hildyard (Fell and Hildyard, 1953, 99) would seem to rule this out. The East Riding of Yorkshire would seem to be the most likely source for a major part of the raw material used in the Wear Valley and in the county as a whole.

Here, the grey flint which predominates in the Wear Valley assemblages would be readily available in outcrops along the coast, especially between Filey and Flamborough Head and substantial amounts of red, yellow, pink and brown flint are also available as beach pebbles (Bisat, 1939; Wilson, 1948, passim.; Rankine, 1952, 146).

A macroscopic examination of grey flint, weathered out from the cliffs in this area and selected at random by Geology undergraduates in 1977/78 would indicate that the flint is similar to that from the valley. The blocky nature of the fracture frost damage and battering abrasion, is all similar to that observed on material from the study area.

It seems, therefore, that prehistoric man may have been exploiting the readily available flint resources of the Yorkshire coast in addition to some utilisation of the locally available glacial flint, though the latter may not have been as important a source of supply as previous writers have intimated. A further constraining factor may have been the time that it would have taken to locate flint pebbles within local gravel deposits. The time taken in this process would seem to the writer to be a waste in terms of the rewards for its expenditure.

CHERT

Chert is readily available in the Carboniferous deposits of Weardale. Fell and Hildyard acknowledge this fact (1953, 108) and an examination of the available geological literature shows the frequency with which chert occurs. For example, Dunham (1948, 19, 22 and 34) shows that the Scar Limestone, exposed to the west of the Burtreeford Disturbance and also in the area between Blackdene and Beiling; the Four Fathom Limestone, which is regularly exposed in the dale, and the "lime plate", which occurs in Swinhope and around the headwaters of the Bollihope Burn, may all carry chert. Johnson and Dunham (1963, 156) also point to local sources in Teesdale.

CHAPTER V

POLISHED FLINT AND STONE AXES AND SHAFT HOLE IMPLEMENTS

The study of flint and stone axes and perforated implements in the north-east of England is still very much in its infancy. No detailed, published, catalogue of finds from the region exists; the material, where published, is spread disparately throughout the north-eastern literature, making it difficult to collate, and very little petrological analysis has taken place. However, work which will hopefully remedy this situation is now in progress.

An interim statement of the results of a basic cataloguing programme of implements in what is now Northumberland, Tyne and Wear and County Durham has been published (Burgess et al., 1981, 6-12). Work on the petrological examination of stone implements is also in progress in the region and the Bowes Museum, Barnard Castle, has recently obtained results for several of the stone axes and shaft hole implements in its collections (S. Clews, pers. comm.) Further work on north-eastern axes is also in hand (A. Harding, pers. comm.).

It is hoped that the following discussion can add something to the study of these implements and that it may challenge some traditional views about what the axe distribution, especially in the Wear Valley, may represent. It is also hoped that the discussion can contribute to the formulation of ideas on the trade and exchange of stone implements in the region.

STONE IMPLEMENTS

The chapter falls into two parts, dealing first with the polished flint and stone axes and secondly with the shaft hole implements. The first part discusses the overall distribution of the axe finds in the valley and then moves on to consider past interpretations of this distribution in the light of recently available petrological analyses. The second section deals again with the general distribution of implements with shaft holes before turning to a discussion of the implements under the various typological headings used by Roe (1966, 1968,1979) and I.F. Smith (1979). Some discussion of the utilisation and function of the polished axes, pebble hammers and axe hammers is to be found in Chapter X and is not entered into below.

POLISHED FLINT AND STONE AXES

To the writer's knowledge, County Durham has produced a minimum number of fifty four axes most of which were found in the late nineteenth and early part of the twentieth century; many are now lost or untraceable (see Inventory and Appendix 1 for a full list of find spots in the county). The study of these implements is beset with several problems, some of which have been touched on above. One of the greatest problems is that caused by confused recording in the past. It is hoped that in the Inventory of finds from the valley such confusions have been resolved.

The majority of the axe findspots in the county are confined to low ground below about 800 ft.O.D. (250 m approximately) and the distribution seems clearly linked to the major river valleys. The greatest number, some thirty five examples, occurs within the study area, with the largest concentration occurring between the river's source and Durham City (Fig. V.1). Outside the Wear Valley there is a small concentration in the lower Tyne Valley around Blaydon (NZ 185 630) and Ryton (NZ 155 645), and some twelve examples have been recorded from the Tees Valley.

With the exception of the Wear Valley area there is a striking lack of axes on the coal measures of central County Durham, and the great block of boulder clay from the southern limit of the East Durham Plateau to the Tees has produced no known examples. More striking still is the apparent bareness of the coastal strip and the Plateau itself, the latter being, physiographically, one of the most attractive areas in the region for early settlement. With the exception of the finds from the Sunderland area (SI2, SI6, SI12, SI22) and Warden Law (NZ 376 502) (SI26) only one axe, that from near Murton (NZ 395 475) (Manby, 1967, 148), seems to have been recorded from the Plateau. Trechmann, however, does record "greenstone chips" from a flint scatter site on the coast at Horden (around NZ 450 410). At least one of these seems to have been a chip from a polished greenstone implement, possibly an axe (Trechmann, 1905, 2). On present evidence just over 56% of the total, some thirty two examples, comes from the western half of the county; thus if one was to accept Steer's arguments (1978, 13), the distribution would seem to indicate "probable impetus" from the west, though as we have already seen above (Chapter I, pp. 28-34) there are many arguments against the uncritical acceptance of distribution patterns.

Distribution in the Wear Valley

Fig. V.1 shows the distribution of twenty nine stone and flint axes which can be located with varying degrees of accuracy within the study area. To this must be added a further six examples from the general area of the upper dale, in the region of Stanhope, known only from documentary references (Egglestone, 1915-16a, 178-179; Hildyard, 1949, 4-5) and which cannot be provenanced with any accuracy.

The axes are distributed within the study area as follows:

Upper Dale	Lower Dale	Middle Wear	Lower Wear	Total
14	5	8	8	35

SOILS

Of the eight axes which can be located with any accuracy in the upper dale, six come from the fell tops and upper slopes of the valley. The examples from High Kitty Crag (?NY 903 385) (SI 8) and Rogerley Quarry (?NZ 025 373) (SI 14) were found on the lower slopes above the terrace system. The upland locations are all in areas with Podsolised soils, supporting peat/turf cover and mantling boulder clay of varying thickness, while the High Kitty Crag and Rogerley examples are probably from areas with thin drift cover, supporting Brown Earth soils of low base status in what is now the zone of improved pasture land. Rogerley Quarry itself is at the foot of the slopes of the valley above the floor and terraces of the dale,on its north side.

In the lower dale the two Tow Law axes (NZ 118 397 and NZ 119 388) (SI 24 and SI 25), (Fig.V.12),are from areas of surface water Gley soils, while the Harthope Beck, which produced SI 7, runs through an area of low base status Brown Earths.

All the axes in the middle Wear, with the exception of those from Witton Gilbert (NZ 230 451) (SI 32) (Fig.V.15)and Sherburn House, (NZ 308 415) (SI 17) (Fig.V.9) are from areas of low base status Brown Earths. The location of the Witton Gilbert implement is of some interest, as it was found in a gravel bed covered by,"five feet of peat and eight to nine inches of soil", (Watts, 1915, 153; Fig. 154). The finder believed that the gravel was an old course of the River Browney. The Sherburn axe comes from an area of surface water Gley soil.

Of the nine finds from the lower Wear Valley, those from Washington (NZ 311 578 and NZ 304 583) (SI 26 and SI 27) (Fig.V.13), and Hylton, (no grid reference) (SI 10), were found on surface water Gley soils while the flint axe from Pallion in Sunderland (NZ 374 582) (SI 12), the other three axes from the Sunderland area (SI 2, SI6, and SI 21) and the stone axe from Warden Law (NZ 376 502), (SI 25),came from high base status Brown Earth soils.

Altitude

Fig.V.2 shows (a) the altitudinal location of all axes in the county known to the writer and for which relevant information is available and,(b) the altitudinal location of axes in the study area with a similar proviso. The majority of axes in the county occur below 810 ft. O.D. (250 m approximately),while detailed information for the valley indicates a general altitudinal spread.

SI 2, SI 4, SI 6, SI 12, SI 16 and SI 21 are all located below 325 ft. O.D. (100 m approximately) while those from Esh Winning (?NZ 197 421) (SI 5) (Fig.V.4b)and Hunwick (NZ 198 321) (SI 9) occur between 325 ft. - 490 ft. O.D. (100 m - 150 m approximately). Three axes, SI 3, (Fig.V.42),SI 13 and SI 14 (Fig.V.6a and b) occur between 650 ft. - 800 ft. O.D. (200 m - 250 m approximately) while around 1000 ft. O.D. (307 m approximately) in the upper and lower dales there is a grouping of five finds, SI 8, SI 15, SI24, SI25 and SI 30. Only two axes occur above 1100 ft. O.D. (378 m approximately), those from Cowshill at 1150 ft. O.D. (353 m approximately) (NY 855 405) (SI 1) (Fig.V.3) and White Edge at 1769 ft. O.D. (544 m approximately), (NY 910 413) (SI 31). A further comment on these data will be made below in the section dealing with perforated implements.

Petrology, The Axe Trade and Chronology

Harding has stated that around fifty Langdale axes come from within the county, many being concentrated in the Wear Valley and he has argued that the valley "doubtless served as a commercial and cultural corridor, linking Durham with the more widely populated regions of the west" (Harding, D.W., 1970, 191-192). Similarly, Clack and Gosling, (1976, 21), state that a,"large number of axes from the Pike of Stickle axe factories have been found in Weardale, which may indicate the use of the valley as a trade route". What must now be asked is whether this is a tenable argument and whether it can be used to account for the observed axe distribution in the study area? Initially, one could criticise both statements at a numerical level. There are just over fifty axes of any sort from the county and few of these are of certain Group VI origin (see below). Clack and Gosling's "large number" of axes from the dale is thus non-existent. The figures are put into proper perspective when one considers that in Yorkshire at least 2,400 flint and stone axes have been found (Manby, 1979, 65) and that Burgess et al. have recorded well over 140 examples from Northumberland (1981, 8, Fig. 3).

The unfortunate lack of petrological work from the north of England has recently been noted (Cummins, 1979, 5) and up until 1982 only five axes from the county had been examined petrologically. Recent work by Cummins, Harding and Davis, however, in conjunction with the region's museums and the British Museum, under the auspices of the CBA's Implement Petrology Committee, has sought to redress the balance. A total of twenty four axes from County Durham has been examined and assigned to regional rock groupings. Such work is of the utmost importance before we can even begin to think about the origins of stone implements, as a macroscopic examination of an implement may not be sufficient or detailed enough to establish the location of the parent material used. Table V.1, below, summarises all of the available information from the study area and the county. The writer is grateful to W. Cummins for access to the results of his thin section work before publication, and to S. Clews and D. Coggins for permission to utilise information contained in their forthcoming catalogue of stone implements in the Bowes Museum.

In the context of this discussion it should also be noted that Hildyard sent five stone implements from the dale (two shaft hole

(A) WEAR VALLEY AXES

Location	N. Grid Ref.	Group No.	Inventory No.	Proposed CBA List No.	Fig. No.	Rock Type	References	Present Location and Accessions No.
Cowshill	NY855405	VI (not sectioned)	SI 1	DU 33	Not seen At B.M.	Epidotized intermediate tuff	a) Anon,1979,127 b) Cummins, pers. comm.	? British Museum
Doxford Pk. Sunderland	NZ3752	Not grouped	SI 2	DU 28	Not seen In private possession	Grey wacke	a) Hall, Sunderland Museum, pers. comm. b) Cummins, pers. comm.	Private possession
Duffolk Crook	NZ171362	(not sectioned)	SI 3	DU 21		Fine ground yellow quartzite	a) Clews, pers. comm.	Bowes Museum, Barnard Castle, Accessions No. 1958, 1800.
Esh Winning	NZ197421	Not grouped	SI 5	DU 14		Amphi bolite/tuff	a) Deas,1935-36, 14-51. b) Reed & Austin, 1976, 222. c) Hall, Sunderland Museum, pers. comm. d) Cummins, pers. comm.	Sunderland Museum Accessions No. 12-1934.

Table V.I A List of axes from the study area for which petrological information is available;
B Other finds from County Durham for which petrological information is available

Location	N. Grid Ref.	Group No.	Inventory No.	Proposed CBA List No.	Fig. No.	Rock Type	References	Present Location and Accessions No.
Fulwell Quay Sunderland	NZ391597	VI	SI 6	DU 13	Not seen At Sunderland	Epidotized intermediate tuff	a) Anon,1979,127 b) Hall,Sunderland Museum, pers. comm. c) Cummins, pers. comm.	Sunderland Museum Accessions No. 159 1972.
Quebec (Hamsteels)	NZ176437	VI	SI 13	DU 5		Epidotized intermediate tuff	a) Anon,1979,127 b) VCH, 1905,199 c) Anon,1914,186 d) Cummins, pers. comm.	Newcastle, Soc. of Ants. Museum, Accessions No. 1914, 11.
Rogerley Quarry	?NZ025373	VI	SI 14	-		Epidotized intermediate tuff	a) Anon,1979,127 b) Hildyard,1948, 3-4 c) Clews, pers. comm.	Bowes Museum, Barnard Castle, Accessions No. 1958, 1806.
Rogerwell Hush	NZ004399	VI	SI 15	DU 19		Epidotized intermediate tuff	a) Anon,1979,127 b) Hildyard,1947, 3 c) Hildyard,1948, 4 d) Clews, pers. comm. e) Cummins, pers. comm.	Bowes Museum, Barnard Castle, Accessions No. 1958, 1809

Table V.1 Continued

Location	N. Grid Ref.	Group No.	Inventory No.	Proposed CBA List No.	Fig. No.	Rock Type	References	Present Location and Accessions No.
Rook Hope	-	III	SI 16	DU 6		Epidiozite or greenstone Source: near Marazion in Cornwall	a) Anon,1979,127 b) Dunham,1964, Unpub.M.S. Soc. of Ants.Museum,Newcastle c) Cummins, pers. comm.	Newcastle, Soc. of Ants. Museum, Accessions No. 1920, 4.
Sherburn	NZ308415	not grouped	SI 17	DU 36		Greenstone	a) Boyle,1892, 63-64 b) VCH, 1905, I 200 c) Cummins, pers. comm.	British Museum, London, Accessions No. BM Sturge 39.
St. John's Chapel	?NY380884	XVIII	SI 18	DU 35		Quartz dolerite Source: Whin Sill of north eastern England	a) Anon,1979,127. b) Steer,1938,31 c) Cummins, pers. comm.	British Museum, London, Accessions No. - not accessed.
Sunderland	-	not grouped	SI 22	DU 11	Not seen At Sunderland Museum	Dolerite	a) Hall,Sunderland Museum, pers.comm. b) Cummins, pers. comm.	Sunderland Museum, Accessions No. 30-1789.

Table V.1 Continued

Location	N. Grid Ref.	Group No.	Inventory No.	Proposed CBA List No.	Fig. No.	Rock Type	References	Present Location and Accessions No.
Toronto	-	VI	SI 23	DU 22		Epidotized intermediate tuff	a) Anon,1979,127 b) Hildyard,1949, 4 c) Hildyard,1952, 1 d) Clews, pers. comm. e) Cummins, pers. comm.	Bowes Museum, Barnard Castle, Accessions No. 1958, 1799
Tow Law	NZ119388	not grouped	SI 24	DU 26		Greenstone	a) Clews, pers. comm. b) Cummins, pers. comm.	Bowes Museum, Barnard Castle, Accessions No. 1975, 89.
Washington	NZ304583	XVIII	SI 27	DU 15		Quartz dolerite, Source: Whin Sill of north-eastern England	a) Cummins, pers. comm. b) Anon,1979,127.	Sunderland Museum, Accessions No. 151, 1966.
Witton Gilbert	NZ230451	VI (not sectioned)	SI 32	DU 8		Epidotized intermediate tuff	a) Watts,1915 & fig. 154 b) Cummins, pers. comm.	Newcastle, Soc. of Ants. Museum, Accessions No. 1915, 4.

Table V.1 Continued

(B) OTHER FINDS FROM COUNTY DURHAM

Location	N. Grid. Ref.	Group No.	Proposed CBA List No.	Rock Type	References	Present Location and Accessions No.
Bowlees Teesdale	NY814287	I	DU 18	Uralitized gabbro, epidiorite or greenstone, Source: Mounts Bay, Penzance, Cornwall	a) Anon,1979,127 b) Clews, pers. comm. c) Cummins, pers.comm.	Bowes Museum, Barnard Castle, Accessions No. 1958, 1810
Cotherstone Teesdale	-	I	-	Uralitized gabbro, epidiorite or greenstone, Source: Mounts Bay, Penzance, Cornwall	a) Anon,1979,127 b) Miket, pers.comm.	Sunderland Museum, No Accessions No.
Eggleston, Blackton Smelt Mill	-	VI	DU 34	Epidotized intermediate tuff	a) Anon,1979,127 b) Cummins,pers.comm.	British Museum, London Accessions No. BM 1964/2-6897
Hartlepool Catcote	-	not sectioned	DU 37	? amphibolite	a) Cummins, pers.comm.	Hartlepool Museum, Accesions No. 6.63
Langdon Beck	NY856304	not grouped	DU 29	? amphibolite	a) Cummins, pers.comm.	Bowes Museum, Barnard Castle

Table V.1 Continued

Location	N. Grid. No.	Group No.	Proposed CBA List No.	Rock Type	References	Present Location and Accessions No.
Murton	-	IX	-	"porcellanite" Source: Tievebulliagh, N. Ireland	a) Anon. 1979,127-8 b) Manby, 1967, 148 c) Keiller, et al., 1941, 63	-
Strands Gill Holwick	NY902267	not grouped	-	Sectioned by Dunham "sericitised felsite ... igneous, probably obtained from local glacial moraine	a) Clews, pers.comm.	Bowes Museum, Barnard Castle, Accessions No. 1977, 41.
Wickham	-	VI	DU 7	Epidotized intermediate tuff	a) Anon, 1979, 127 b) Anon, 1918, 16 c) Cummins, pers.comm.	Mewcastle, Soc. of Ants. Museum, Accessions No. 1917, 4.

Table V.1 Continued

implements and three polished axes), to Professor North at the National Museum of Wales, Cardiff, for petrological identification (Hildyard, 1948, 3). The three polished axes were from Duffold (?NZ 17,36) (SI 3); Shittlehope (later re-provenanced to Rogerwell Hush and recently thin sectioned), (SI 15), and "an axe from near Stanhope". While Professor North's analysis does not really help with the identification of the sources of rock used, his comments are worth recording. He pronounced the Duffold axe to be of "quartzite"; the Rogerwell Hush implement, shown above to belong to Group VI, to be of "a fine grained siliceous rock: the type usually described in the archaeological literature is felsite", and the axe from "near Stanhope", to be of "a rock similar to the last (Rogerwell Hush) in origin but more decomposed" (Hildyard, 1948, 4). Hildyard also suggested that the axe from Whiteley Rigg was of "Cumbrian lava", but this was only as a result of a macroscopic observation of the implement (Hildyard, 1948, 3).

Thus, on the basis of the available petrological data, there is little support for the statements made by Harding and Clack and Gosling noted at the beginning of this section. Nine instances of Group VI rock being used for axe manufacture out of a total of twenty four axes which have been examined hardly constitutes a "large number" of Langdale implements.

At a different level it is possible to question the whole idea that the Wear Valley was a connecting corridor between east and west,and vice versa,in the Neolithic period. Nowhere in the east of County Durham does there seem to be an overt cultural connection with the north-west in the Neolithic or at any other period. Within the study area the possible Neolithic round barrow at Warden Law (NZ 376 502) (B73) betrays no traces of cultural contact with the west and,as Manby has pointed out, the Neolithic pottery from the mound of the Hasting Hill barrow (NZ 356 536) (B45) can best be paralleled from sites in Yorkshire (Manby,1973, 220-221, Chapter VI, pp. 185-186 below).

Further evidence of Neolithic activity comes from the Copt Hill, Houghton-le-Spring, round cairn (NZ 353 492) (B8). The primary feature at this site is a burnt and collapsed mortuary structure (Trechmann, 1914, 123-132; Chapter VIII, pp. 250-251 below), a characteristic feature of long barrows and Neolithic round barrows in northern England (see below, pp.250-253, and Manby, 1970, 1-27). The best parallels for this come again from Yorkshire with no visible traces of Cumbrian contact (Manby, 1970, 1-27). This is hardly evidence for influence from the west, using the river valley as a connecting corridor.

Implicit in both statements quoted at the beginning of this section is the idea that the axe distribution actually marks the route taken by the supposed axe traders. Even if all the axes in the valley were of Lake District/Cumbrian origin,is it probable that people whose aim was to take axes from point A to point B for trade or other purposes, would scatter implements to leave a trail behind them like the hare in some Neolithic paper chase? This surely does not seem likely.

With the exception of the implement from Rogerley Quarry (SI 14), all the axes in the dale occur above 1000 ft. O.D. (307 m approximately) on the slopes of the valley and the fell tops. Travel up or down the valley in these areas may not have been easy given the many steep sided streams which run down from the tops into the Wear. In the upper dale alone, on the north side, where all the axes seem to have been found there are at least eighteen large stream valleys which would have to be crossed on an east/west, west/east journey. Some of them would no doubt present considerable obstacles to anyone transporting axes by primitive means. Add to this, Hildyard's observations (Fell and Hildyard, 1953, 92) on why the Wear Valley cannot realistically be used as a highway across England, and the likelihood of the region being used as a "trade route" becomes scarce.

Having made these points, one cannot deny that "traded" axes were reaching the valley, and the presence of Cornish and Cumbrian rock has to be explained somehow. However, a simplistic mechanism of west-east trade or exchange is certainly not sufficient to account for the variation in rock types used or the axe distribution. Bearing in mind the presence of polished axes made from locally derived Group XVIII Whin Sill rock in the limited, analysed, sample, and also the evidence for the use of quartzite and other locally outcropping rock (cf. the Strands Gill, Teesdale, find) it may be that, in an area of such wide ranging lithological variability as the north of England, a very complicated picture will emerge in the future. The "trade" in stone axes may well have gone on against a generalised background of quite heavy use of localised raw materials. Only further petrological work will clarify this situation.

In Chapter X below (pp. 361-362) a functional interpretation of the axe distribution is offered. If the axes cannot be used to mark hypothetical trade routes, then their occurrence in the valley must be some indication of the general areas in which they were used and ultimately lost or discarded. The writer would see the axe distribution at one level, as a bi-product of forest clearance and agricultural activity carried out by the axe users. This idea is more fully developed below.

Chronology

Only very generalised statements can be made about the chronology of the polished axes in the valley. A major problem is caused by the fact that all the examples under study are stray finds with no other associations.

I.F. Smith has attempted to assemble the available data relating to stone axe chronology for the whole of Britain (1979, 13-22). She has suggested that polished stone axes were manufactured over a period of 1,500 radio carbon years from c. 3250 bc to 1750 bc and that within this span certain rock sources rose and fell in popularity for axe manufacture (1979, 14, Fig. 1).

Only axes which have been assigned to specific petrological groups can be discussed in this context, and as a result we are only dealing with implements from the study area made from Group I, III, VI and XVIII rock.

Group I seems to have been utilised throughout Smith's 1,500 radio carbon year period; Group III has a more limited range of 2000-1750 bc on present evidence; Group VI was in use from at least 3000 bc - 1750 bc and Group XVIII exploitation fits into a 250 year period between 2000 bc and 1750 bc (Smith, 1979, 14, Fig. 1). In the absence of more closely dated examples recovered from excavation in the area this is the present limit to any discussion of axe chronology.

SHAFT HOLE IMPLEMENTS (Fig. V.1)

Some thirty three shaft hole implements from County Durham are known to the writer, and of this total, twenty three (just over 69% of the total) come from the study area (see Inventory and Appendix 1 for a full list of findspots). The largest concentration in the county is between Wolsingham and Stanhope in the dale, an area which has produced at least nine implements, and, as with the polished axes, the greatest number of finds comes from the western half of the county which has produced at least twenty perforated implements. Again, as with the polished axes, apart from the battle axe dredged from the mouth of the Tees (Elgee, 1930, 61-2), the whole of the south-east corner of the county has produced no known finds. With the exception of the grouping of five finds around Sunderland (SI 43, SI 44, SI 47, SI 50 and SI 56), the East Durham Plateau also seems devoid of shaft hole implements.

In terms of altitudinal location only three finds (SI 37, SI 39 and SI 42), all from the study area, occur above 800 ft. O.D. (246 m approximately). The rest of the implements from the county occur around or below this height.

Distribution in the Wear Valley

Fig.V.1 shows the distribution of twenty one provenanced finds in the Wear Valley. The number of different implement types within the valley is as follows:

Type	Upper Dale	Lower Dale	Middle Wear	Lower Wear	"Weardale"
Unclassified	1		1		
Pebble Hammer	2	2			1
Cushion Macehead		1			
Pestle Macehead		1			
Battle Axe	2	1		2	
Axe Hammer	4		1	1	
Shaft Hole Axe				2	1
Total 23	9	5	2	5	2

Table V.2 Distribution of shaft hole implement types within the study area

Soils

With the exception of the find from Heathery Clough (NY 846 420) (SI 42)(Fig.V.19b),which came from an area of surface water Gley soil and the implements from Collier Law, (no grid reference) (SI 37) and Crawley Edge (NZ 001 397) (SI 39) which occurred on humus iron Podsols, all the shaft hole implements in the upper and lower dale areas came from low base status Brown Earth soils.

In the middle Wear the Sately pebble hammer (no grid reference) (SI 51), comes from an area of surface water Gely soils while that from Stonechester, Willington (?NZ 181 365)(Fig.V.24) and the unclassified implement from Durham City (SI 36) are from areas of low base status Brown Earths. The finds from Millfield (NZ 383 574) (SI 44) and Wearmouth Bridge (NZ 393 574) (SI 56) are both from high base status Brown Earth soil while the two implements from the Hylton area (no grid references) (SI 43 and SI 47) (Fig.V.21),are from surface water Gley soils.

Altitude

As many of the perforated implements have been badly recorded in the past, detailed information on altitudinal location is only available for nineteen of the thirty three finds from the whole county, twelve of which are from the study area. As with the polished axes, Fig. V.17 shows (a) the altitudinal location of all perforated implements in the county for which information is available and (b) all those shaft hole implements from the study area which can be located in detail. Both diagrams show a concentration around and below 800 ft. O.D. (246 - 250 m approximately). In the study area just over 72% of those finds for which data is available come from around or below 800 ft. and this is in direct contrast to the polished axes, (Fig.V.2), 56% of which occur below or around this height.

Differences in altitudinal location between the polished axes and the shaft hole implements are most marked in the dale west of Wolsingham. Here, as Fig.V.1 shows, the overall distribution is almost mutually exclusive, with the perforated implements (with the three exceptions noted above) occupying the lower slopes and terraces, and all the polished implements, with the exception of the Rogerley Quarry find (SI 14), occurring above 1000 ft. O.D. (307 m approximately) on the upland areas of the dale. It is sufficient here to note this disparity. A further discussion of the possible implications for clearance and subsequent land use patterns in the area will be found in Chapter X below. The major shaft hole implement types found in the study area will now be discussed in detail.

Unclassified

Two perforated implements have been placed in this category, the untraceable "macehead" from Durham City (SI 36), seen by Mr. W. Dodds in 1972, and the butt end of a much rolled and damaged artefact with an hour glass perforation, recovered from the Heathery Burn near Heathery Cleugh (NY 846 420) (SI 42) (Fig.V.19b).

These pieces have been placed in this category because the former could not be traced by the writer and because the latter was so abraided that a firm identification of type was impossible. SI 42 has however, been examined petrologically and assigned to Group XVIII, the local quartz-dolerite of the Whin Sill (Cummins, pers. comm., proposed CBA petrology group list no. DU 20).

Pebble Hammers

Following Roe (1968, 146; 1979, 36), the term "pebble hammer" has been used to describe four implements, three complete and one fragmentary, which are definitely from the study area, and a complete example which may be from the valley but which cannot be accurately provenanced.

The complete example from Milne House, Frosterley, in the upper dale (NZ 024 360) (SI 45 (Fig.V.21a),is now in the British Museum (Sturge Coll. 30), as is that from Coves House near Wolsingham (NZ 053 363) (SI 38) (Fig.V.18a). The hammer from Sately Grange farm in the lower dale (no grid reference) (SI 51), was supposedly donated to the Society of Antiquaries Museum in Newcastle (Anon., 1925-26,100), but was not seen by the writer,and the fragmentary hammer from Shittlehopeside (no grid reference) (SI 53),.exhibited in 1926 to the Society of Antiquaries, Newcastle also cannot now be traced (Anon., 1925-26, 9, 228, Fig.). The unprovenanced example which belonged to Hildyard and which is probably from the dale, is now in the Bowes Museum (SI 57) (Fig.V.25a) (Accessions No. 1958, 1795).

All five hammers show elements of the major features of the type as described by Roe (1968, 146), and SI 38, SI 45 and SI 57 all show evidence for battering and utilisation. No further information is available for the hammers from Sately and Shittlehopeside (SI 51), (SI 52).

Roe has indicated that the majority of these implements are made of quartzite, but she does document the use of Group VII, XIII, XV, XVIII, XIX, and XX rock in their manufacture (1979, 36). Cummins has examined three examples from the study area (SI 38, SI 45 and SI 57) of which only one, SI 57, was thin sectioned and shown to be of Group XV rock, "a micaceous, sub grey wacke" from the southern Lake District of Cumbria (Anon., 1979, 127; Cummins pers. comm.; proposed CBA petrology list no. DU 23). On a macroscopic examination, SI 38 and SI 45 were pronounced to be of "dolerite" and "quartzite" respectively (Cummins, pers. comm.; proposed CBA petrology list No.'s DU 30 and DU 31). An interesting insight into the accuracy of earlier macroscopic identifications of rock type is gained by comparing these results with the V.C.H. which records that SI 38 was of "basalt" and SI 45 of "micaceous sandstone" (V.C.H. 1905, I, 199-200). SI 53 has also been identified as "basalt" (Anon, 1925-26a,228) and the Sately hammer is recorded as being of "quartzite" (Anon. 1925-26, 100).

The chronology of pebble hammers is not without its problems. Rankine (1949, 70-76) and Mellars and Reinhardt (1978, 243-293) have shown that some may well belong to the Mesolithic period, but Roe has demonstrated that, on the basis of find contexts, some may be of Neolithic and Bronze Age date. She has also suggested that at least three examples may belong to much later periods, coming from Roman and Iron Age contexts (Roe, 1979, 36).

Cushion Maceheads

These have been discussed in detail by Gibson (1944, 16-25) and Roe has briefly discussed their development within the macehead series, concluding that, "possibly they could be regarded as the most sophisticated variety of macehead" (1979, 30).

The fragmentary example from Fawnless, Wolsingham (no grid reference) (SI 40) (Fig.V.19a), now in the Sturge Collection of the British Museum (Sturge Coll. 341), exhibits all the major shape characteristics of the type as outlined by Gibson (1944, 17-18), being oblong, of pillow shape, with convex curving of the sides, ends and faces, and having a cylindrical shaft hole. One face of the implement shows evidence of burnishing and the presence of heavy striations and scratches might suggest that it had been used as a hone at some time.

Gibson (1944, 19) discusses the raw material used for the manufacture of cushion maceheads, pointing out that hard, crystalline, rocks were invariably chosen,especially those capable of being polished. The Fawnlees example, which has not been examined petrologically,is grey in colour, and has a very fine, smooth, feel. In places, where burnishing has taken place, the rock is black in colour.

As Roe indicates, cushion maceheads usually occur as isolated finds and any discussion of chronology is difficult. She does however record one dubious, highly fragmentary, example from Skara Brae (1979, 30). Smith has suggested that maceheads in general,"may have appeared early in the first quarter of the second millennium BC, overlapping with the final phase of stone axe production. They may have fallen out of fashion sometime during the third quarter of that millennium, when there was perhaps a shorter phase of overlap with battle axes" (I.F. Smith, 1979, 14, Fig. 1 and 15-16).

Pestle Maceheads

The implement from Redgate Head, Wolsingham (NZ 089 381) (SI 49) (Fig.V.23),first published by Wooler (1913-14, 92) and now in the Bowes Museum (Accessions No. 1979, 11),falls into Roe's "Thames" class of pestle macehead (Roe, 1968, 148-149). It has been thin sectioned and found to be of "basic hornfels" rock with no group associations (Clews, pers. comm.).

Writing in 1968, Roe could document no known associations with Thames type pestle maceheads. One possible, fragmentary, example, occurs as a "loose find" from Childe's excavations at Skara Brae (Roe, 1968, 154), but this is by no means a certain identification of type and the context is unclear. (See also Smith's general remarks on macehead chronology, noted above).

Shaft Hole Adzes

Three possible examples of this type have been recorded, one from "Weardale" now in the Sturge Collection in the British Museum (unregistered) (SI 58), (Fig.V.25b);one from North Hylton near Sunderland (NZ 35 58) (SI 47) Fig.V.21b), (Sunderland Museum, Accessions No. 46/1955/2) and one from Hylton Castle, now lost (Preston, 1929, 141; 1933, 20-22) (SI 43). Miket has suggested (pers. comm.) that the Hylton finds may in fact be the same implement,though bearing in mind the fact that the extant North Hylton adze is broken and that Preston seems to imply that the Hylton Castle find was complete and in good condition, this seems unlikely.

First noted by Curwen (1928, 77-91), the majority of shaft hole adzes have been characterised by Roe (1979, 36) as being,"about twice as long as they are broad, with an hour glass shafthole in or near a central position". One or both ends are usually removed to form a blade, "though this never gives the impression of being capable of cutting". The North Hylton find may fit into this category. (Fig.V.21b).

Roe also notes a variation in form,recording a circular, disc like,type,"which perhaps should not be included in the general category of adzes" (Roe, 1979, 36). The "Weardale" implement (SI 58), has been placed into this category on the basis of its roughly circular shape, central hour glass perforation and possible evidence for thinning or narrowing of its edges by intentional chipping (Fig.V.25b).

On present evidence Group XV and XVIII rocks are the main types used for adze manufacture. The North Hylton find (SI 47) has been thin sectioned and found to be a grey wacke (Cummins, pers. comm.) while (SI 58),which has not been sectioned, is recorded as "sandstone" by the British Museum.

No firm chronological data is available for this class of implement as a whole, though half of one was found in the upper layers of the outer ditch at Windmill Hill (Smith, 1965, 114, No. 34, Fig. 51, S10). Smith has also suggested that they may have been produced from around 1650 BC to 1250 BC (Smith, 1979, 16).

Axe Hammers

Three definite and three possible axe hammers have been recorded in the study area. The three definite finds come from Parson's Byers near Frosterley in the upper dale (?NZ 004 371) (SI 48) (Fig.V.22); Roker Beach, Sunderland (NZ 408 591) (SI 50) and from near Stonchester in the middle Wear (NZ 180 365) (SI 55) (Fig.V.24). The three possible examples, all now untraceable, are from the upper dale at Newfield Farm, Stanhope (NY 999 391) (SI 46), Shittlehopeside, (no grid reference) (SI 52) and the vicinity of Collier Law (no grid reference) (SI 37).

The Newfield Farm "hammer" was recovered by Mr. G. Wilkinson of Shittlehopeside Farm on ploughing a field in 1969 and he also discovered the Shittlehopeside axe hammer which was broken up and used as a packing for a farm gate post (Hildyard, 1948, 5). No information is available about the find from near Collier Law (Egglestone,1915-1916b, 196).

Roe has differentiated between axe hammers and battle axes on the immediately visible differences of size and appearance, axe hammers being larger and more clumsy than battle axes, as well as on the basis of more detailed metrical analyses (1966, 199-203). The finds from Parsons Byers and Stonechester fit into her convex Class Ib (Roe, 1979, 30),having their greatest depth at the blade end. The Roker Beach find was not seen by the writer.

In terms of implement petrology,Roe notes that Group XII, XV and XVIII rocks were particularly used for axe hammer manufacture, each rock type having a restricted spatial distribution. SI 50 and SI 55 have both been thin sectioned, SI 50 being of Group XV rock (Cummins, pers. comm.; proposed CBA petrology list no. DU 16), and SI 55 being of Group XVIII (Clews, pers. comm.). Table V.3 below shows how this information compares with results from the petrological

Location	N. Grid Ref.	Group No.	Proposed CBA Petrology List No.	Rock Type	References	Present Location and Accessions No
Blackhall Mill	NZ122569	XV	DU 2	Milaceous sub grey wacke Source: Lake District of Cumbria	a) Anon,1979,127 b) Cummins, pers. comm. c) Jobey,1972, 292-293 No.4	Newcastle, Soc. of Ants. Mus. Accessions No. 1973, 3
Gainford (Scots Dyke: Ingleton-Headlam	?NZ 1716	-	DU 3	Greywacke	a) Cummins, pers. comm. b) VCH 1905, I, 199 c) Anon,1905a, 74	Newcastle, Soc. of Ants. Mus. Accessions No. 1933, 38
Felling Nest House Estate	No grid reference	XVIII	DU 4	Quartz dolerite Source: Whin Sill of north-eastern England	a) Cummins, pers. comm. b) Anon, 1937-38, 148-149	Newcastle, Soc. of Ants. Mus. Accessions No. 1938, 18.
Wickham	NZ212616	XVIII	DU 10	Quartz dolerite Source: Whin Sill of north-eastern England	a) Anon.1979,127 b) Cummins, pers. comm.	Newcastle, Soc. of Ants. Mus. Accessions No. 1899, 2.
Redworth	No grid reference	XVIII	DU 27	Quartz dolerite Source: Whin Sill of north-eastern England	a) Anon.1979,127 b) Cummins, pers. comm. c) VCH 1905, I, 199-200	Bowes Museum, Barnard Castle, Accessions No. 1945, 357

Table V.3 The results of petrological analyses on axe-hammers in County Durham outside the Wear Valley analysis of other axe hammers in the region.

The chronology of axe hammers is a major problem, as most occur as isolated stray finds (Roe, 1979, 30). However, Smith has suggested that, as with shaft hole adzes, axe hammers are an Early Bronze Age phenomenon, being produced from around 1650 BC to 1250 BC (I.F. Smith, 1979, 16).

These implements may well have functioned as multi purpose agricultural tools and more will be said about this in Chapter X below.

Battle Axes

Five possible examples of this implement type have been recorded from the valley; two from the upper dale at Crawley Edge (NZ 001 397) (SI 39) (Fig.V.18b), and "near Heathery Burn" (no grid reference) (SI 41); one from the lower dale at Stanley Farm, Crook (no grid reference) (SI 54); and two from the lower Wear, at Millfield in Sunderland (NZ 383 574) (SI 44) (Fig.V.20)and from the Wear itself above Wearmouth Bridge, also in Sunderland, (NZ 393 574) (SI 56).

Of these the Crawley Edge, Heathery Burn and Millfield finds are extant, though the Heathery Burn example was not seen by the writer at the Museum of Antiquities (Newcastle) or the British Museum on fieldwork visits. Some confusion surrounds the Stanley Farm find (SI 48). Clews (pers. comm.) has identified this with an implement in the Bowes Museum,said to have been found in the course of constructing the Stockton and Darlington Railway (Accessions No. 1975, 58). However, a comparison of the available drawing of the latter with the photograph of the Stanley Farm battle axe, published by Wooler (1911-12, 37, illust. opp. 19),suggests that they may be two different implements.

The Stanley Farm battle axe was recorded as being 5½" long (Wooler, 1911-12, 37), while the extant example at Bowes is only 5" long. Similarly the shaft hole of the Stanley Farm axe seems much wider than that visible on the Bowes Museum example.

The V.C.H. (1905, I, 200) records that both of the Sunderland battle axes were in the Sturge Collection in the British Museum. However, only one, SI 44, from Millfield, is accessed there now (Sturge Collection 295).

In her exhaustive discussion of battle axe typology and classification (1966), Roe placed the Crawley Edge fragment, which is slightly hollowed out at the top and bottom, into her Stage I, dished, battle axe group (Roe, 1966, 213 and 234). These are a variant form within her Stage I class, accounting for some 23% of the total Stage I axes identified (Roe, 1966, 213). Similarly on the basis of Wooler's photograph, she includes the Stanley Park Farm example in her main Stage I group though this is a tentative identification (Roe, 1966, 205-207 and 234). The Millfield find, which was used in her metrical analysis, is placed into her Herd Howe, Stage II category with a "C" form butt. This is an intermediate form between her typologically early Stage I "Woodhenge" class and her later Northern and Southern Variant forms (1966, 213, Table III). The type C butt form is sharply truncated (Roe, 1966, 204) and the blade of the Millfield find is slightly splayed. Roe does not classify the fragment from "near Heathery Burn".

SI 39, SI 41 and SI 44 have been thin sectioned and shown to be of Group XV, XVIII and XVIII rock respectively (Cummins, pers. comm., proposed CBA petrology list Nos. DU 24, DU 1 and DU 32, Clews, pers. comm.). The Group XV association of SI 39 would fit in with Roe's observation that this rock type was only used in the manufacture of typologically early battle axe forms (Roe, 1966, 218). Group XVIII rock was used in the manufacture of battle axes in all stages of their development (Roe, 1966, 218).

The preceding discussion has shown the range of implements from the study area and it has also highlighted some of the problems of working with this material. It cannot be over-emphasised that more petrological examination of both polished axes and the shaft hole implements is essential for a more informed discussion of distribution patterns and possible exchange mechanisms at work in the region.

CHAPTER VI

PREHISTORIC POTTERY IN THE WEAR VALLEY

Prehistoric pottery has been recovered from at least sixteen locations in the study area, representing at least forty-eight vessels (Fig.VI.1). This number of locations accounts for just over 39% of the findspots from the whole of County Durham and the number of vessels recorded is approximately 66% of the total known from the whole region (see Appendix 2 for a complete list of findspots in the county).

Thirty-five of the forty-eight Wear Valley vessels, some 48% of the total finds from the county, have come from funerary contexts and the rest from definite,or possible, none funerary contexts. The breakdown below shows the number of different vessel types recovered from the study area:-

NEOLITHIC BOWL FORMS:	2
BEAKERS:	3
ACCESSORY VESSELS:	2
FOOD VESSEL URNS:	5
CINERARY URNS:	3
FOOD VESSELS:	14
COLLARED URNS:	7
MISCELLANEOUS VESSELS:	12

At a glance it can be seen that the ceramic assemblage is small and of limited range. This is largely due to the paucity of excavation in the area and also, to a large extent, the nature of the pottery itself. Prehistoric pottery is friable and easily eroded (see, for example, the Collared Urn from Crawley Edge, P30), and does not withstand for long the ravages of the elements if left on the surface of a ploughed field.

With the exception of the urn from Crawley Edge, nearly all the material under discussion has been published before to a greater or lesser degree. As a result it seems inappropriate that this data should be reworked on a large scale here, especially when it represents only a small part of a larger corpus of material dealt with at some length in recent publications (Cowie, 1978; Gibson, 1978). Cowie's monograph was a particularistic study of one vessel form in the north of England and Scotland, while Gibson's was a more generalised survey of "Bronze Age" pottery in the north-east. These represent the most recent statements of our knowledge about prehistoric pottery in the region and both concentrate on third and second millennia vessel forms. Challis and Harding (1975) and Plowright (1978) deal with vessel types of the late second and first millennium from the area.

All of these approaches, especially Gibson's, while attempting to be comprehensive, are traditionalist in outlook, concentrating mainly on form, decoration, context and distribution. Little attention has been paid to technological aspects of the pottery, e.g. methods of building, firing processes and temperatures and sources of raw materials. The present writer believes that this is a sad failing generally in the study of prehistoric pottery, especially given the vast amount of information which such approaches have generated with regard to the study of pottery from other periods.

Gibson (1978, 2-4) produces the most up-to-date distribution maps for three main classes of vessel in the north eastern region (Food Vessels, Food Vessel Urns and Cinerary Urns) and his work has been of much use to the writer as a general source of comparanda. However, by far the most valuable source of information on pottery from the study area is Trenchmann's 1914 paper "Prehistoric Burials in the County of Durham" (1914). This contains information on his barrow excavations, which were, until the writer's work at Crawley Edge, the only published excavations on such sites in the region.

In what follows, the writer has pursued the traditionalist path in the study of the material. There is no detailed discussion of fabric, nor is there any attempt to set up a fabric series and locate the source of materials used through microscopic analysis, for the valley. Such work was not thought to be within the brief of the present survey and indeed it may merit a whole thesis to itself. It has, however, been assumed, possibly wrongly, that the pottery under discussion was essentially of coil construction, manufactured from very localised clay sources and fired at low temperatures in bonfires or simple pit kilns. Due to the small nature of the sample, and the reasons outlined above, it was thought more convenient to stay within the bounds of the traditional typological approach to the material.

Terminology and Classification of Vessel Forms

The breakdown of vessel types noted above shows the terminology and classification used to order the pottery for study. It is essentially that used commonly in general prehistoric archaeological parlance and though some of the terms have been called into question (Gibson, 1978, 1; Cowie, 1978, 13-14) they have been retained. They have at least the benefit of being well known and conveying the idea of discrete ceramic traditions; all the vessels classified under a particular heading are related by aspects of form, fabric and decoration. The writer is in agreement with Cowie that, "too great an insistence on fine semantic points (of classification) would just lead to more terminological problems: our terminology is by no means satisfactory but nevertheless it is workable" (1978 13).

The remainder of this chapter deals with individual vessel types separately, discussing form and decoration, distribution and context and associations and chronology. Attempts have been made to find parallels for vessels from nothern and more generalised contexts where possible. Discussion of the context and associations of the funerary pottery is kept to a minimum here. It will be considered in greater detail in the section on burials below (see Chapter VIII below). Pottery from domestic andnone funerary contexts has been dealt with in detail in the present chapter.

NEOLITHIC BOWL FORMS

Examples of two distinct types have been recorded from the barrow make up at Hasting Hill (NZ 352 543) in the lower Wear (Trechmann, 1914, 155-156), and these have been re-published by Manby (1973, 219-222). It should be noted that Neolithic pottery is rare in the north-east of England and Miket, in a recent survey, could only document some fourteen findspots in the whole of the region (Miket, 1976, 116, Figure 7.1).

Form and Decoration

Hasting Hill Vessel A (Fig. VI.2a, Pl.VI.1, Pl), a semi-globular bowl, is represented by three conjoining rim sherds. The fabric, which shows a laminated structure, is orange, with dark tones on the exterior and a grey core. Angular stone grits and ? micaceous sand have been used in the tempering. The decoration consists of shallow, vertical, incised lines around the exterior and shallow indentations on the rim bevel. Grimston Ware, the earlier Neolithic pottery style in northern England,is essentially plain, with only rare finger nail decoration and thumb rippling; however Manby has put forward good parallels for this vessel in his Towthorpe Ware assemblages of Yorkshire where incised lines and finger nail impressions form the main, scarce, decorative traits (1973, 219-222). Southern parallels for the decoration come from the Windmill Hill, Mildenhall, Whitehawk and Abingdon styles of pottery, where incised lines are taken as characteristic of the Middle Neolithic period (Clark, 1966, 176-177, Figure 1). A close parallel in size and rim form is provided by the undecorated P.89 from Windmill Hill (I.F. Smith, 1965, 61, Figure 19, P.89). Shallow vertical line decoration also occurs on Neolithic pottery from western Scotland e.g. the chambered cairn at Mid Gleniron, Wigtownshire, (Corcoran, 1969, 68 and 81, Figure 11h).

Hasting Hill Vessel B (Fig.VI.2b, Pl.VI.2, P.2), is of very different type. It is represented by only one heavy rim sherd of marked 'T' shaped profile, with an internal rim bevel. The vessel has a hard, reddish, fabric with dark toned surfaces, and crushed stone has been used in the tempering. The decoration consists of deeply incised, 'V' profiled, lines on the rim bevel and lip of the rim, with heavy down curving incised lines on the neck of the vessel. Manby has isolated very close parallels for this form from Peterborough Ware assemblages in North Yorkshire (1973, 221) and no doubt the vessel would fit into his Rudston style, characterised by 'T' rimmed vessels showing a preference for incised decoration (Manby, 1975, 23-59). The incised arcs of the decoration proved impossible to parallel in the north-east but cord impressed arcs and loops decorate Peterborough Ware bowls in eastern Yorkshire, at North Carnaby Temple site 6 and Ford in Northumberland (Longworth, 1969, 258-61; figure 1, 3-4).

Distribution and Context

The remains of both vessels come from the same barrow mound, but their context within this mound is of some interest. They were found, "scattered through the material of the barrow", along with, "many bones, human and otherwise ... and flint chippings", (Trechmann, 1914, 155). Two possibilities present themselves here:-

(i) that the vessels were accompanying earlier burials subsequently disturbed by the insertion of later interments and cremations or,

(ii) that in the absence of a quarry ditch surrounding the barrows, they represent material from earlier domestic occupation in the area which was scraped up when the material for the mound was being gathered together.

In the light of the presence of ,"many bones" ,the writer inclines to the former suggestion and would group Hasting Hill with round barrows like Copt Hill and Warden Law in Co. Durham and Ford in Northumberland (Greenwell, 1877, 410, CLXXXVIII), which had their origins in the Neolithic.

Associations and Chronology

The true associations, if any, of the vessels are unknown and we can only discuss chronology in very broad terms. Vessel A may be Early-Middle Neolithic in date and Vessel B ? Middle or Later Neolithic.

BEAKERS

Three Beakers have come from three separate locations in the valley; Brandon and Sacriston in the middle Wear and Hasting Hill in the lower Wear (Trechmann, 1914, 130-132, 134-135 and 146-150). All three are recorded by Tait (1965, 67-68, Nos. 67, 68 and 88 respectively), who also records a fourth Beaker, now lost, from Fatfield (1965, No. 104). However, close consideration of Trechmann's original report on the find shows that this was probably a Food Vessel (1914, 169).

Clarke notes the three vessels (1970, 480, Nos. 219, 223 and 221) and he asigns them to the following Beaker groups:-

BRANDON, (Fig.VI.3 P3) - Developed Northern British Beaker Group (N2).

SACRISTON (Fig.VI.5 P5) - Late Northern British Beaker Group (N3).

HASTING HILL (Fig.VI.4, PL.VI,3,P4)- Northern British/North Rhine Beaker Group (N/NR), with finger nailed decoration, none plastic rustication (FN).

Form and Decoration

The Brandon example fulfils all the classificatory criteria for Developed Northern Beakers as set out by Clarke (1970, 162-164). The decoration, which is comb or toothed wheel impressed, has been carried out in his "Style b" (1970, 13) and consists of four decorated bands of double herringbone motif, (Clarke's Motif Group 3, No. 19; 1970, 426), separated by undecorated zones, each one bordered top and bottom by two lines of toothed wheel/comb impressed decoration. The bottom herringbone zone has seven ? comb impressed lines beneath it.

Similarly the vessel from Sacriston exhibits all the definitive shape characteristics of Clarke's Late Northern Series (1970, 176), and the decoration has been carried out in his "Style C" (1970, 13). The neck is decorated by broad grooving with a blunt tool (Motif Group 3, No. 21; 1970, 20) and immediately below this there is a zone of herringbone decoration similar to those on the Brandon vessel. Two other decorated zones, one on the belly and one on the base, are also visible. The belly decoration, in Clarke's Motif Group 1, No. 4, is again comb impressed and bordered top and bottom by two parallel lines of comb impressed decoration. The basal zone consists of Motif Group 1, No. 1, a series of five horizontal, roughly parallel, lines of comb impression.

The third vessel, from the barrow on Hasting Hill, shares none of the decorative traits of the other two and Clarke's treatment of the piece is slightly ambiguous. In his corpus he classifies it as N/NR; however the pot is not shown on his distribution map of this type (1970, 560, map 4). It has been suggested (Clarke, 1970, 122) that the beaker may be a rare representative of the range of domestic vessels linked to the N/NR group, though lack of comparative material must make this a tenuous suggestion. On close examination, the decoration seems to have been carried out by two methods, and it could be argued that it shows traces of vestigial zoning. Just below the rim is a series of seemingly random "stab and drag" impressions which may well be a crude attempt at representing herringbone decoration. Immediately below this is a broad zone of downward curving impressions/incisions, made with either a thumb or finger nail or a sharp instrument like a flint blade, and immediately beneath this, running around the base of the vessel, is a further series of "stab and drag" impressions similar to that noted above. Clarke postulated that the occurrence of this type of decoration on N/NR vessels was an indication of "the strong none Bell-Beaker element in the pottery" (1970, 120).

Distribution and Context

All three vessels come from funerary contexts. The Brandon Beaker was found in a cist beneath a barrow,accompanying a crouched inhumation (Trechmann, 1914, 130-131). The Sacriston vessel, which was found in a modern churchyard, was also in a cist with contracted burial (Trechmann, 1914, 134-135), while that from Hasting Hill (Trechmann, 1914, 146-150, Find IX) accompanied what seems to have been the "primary burial", again a contracted skeleton, in a cist beneath a barrow which saw much subsequent activity.

Burial is the commonest context for most Beaker finds from the north of England with only two possible domestic sites, Ross Links, Northumberland and Old Yeavering, Northumberland having been identified (Tait, 1965, 15). Many writers, e.g. Atkinson (1972, 108-9) and Burgess (1974, 174),have argued that,in the main,Beaker burial takes place in a "flat grave",though the writer would take issue with this (see Chapter VIII below).

All three finds are from locations close to the river Wear and the general riverine distribution of Beakers in the north of England (Tait, 1965, 6, Figure 1) prompted Tait to suggest that all the main rivers of the region had been of importance in the colonisation of the area by "Beaker Folk". Here is not the place for a full discussion of the recent debate about the validity of the concept of a "Beaker Culture" and "Beaker Folk" (see for example, Burgess and Shennan, 1976, 309-331; Case, 1977, 71-101),though the writer would argue that the distribution of Beaker pottery in the middle and lower Wear areas probably reflects recent land use and archaeological activity rather than any prehistoric folk movement.

Associations and Chronology

The Hasting Hill Beaker is the only vessel with artefactual associations, a flint knife and a simple bone pin or awl. (For a full discussion see Chapter VIII pp.257-267). In addition, the tip of an antler pick was also found in the cist, as were shells of Littorina Littorea (the common periwinkle), the vertebrae of a bony fish (not named), and "bird bones" and a few calcined mammalian (non-human) bones (Trechmann, 1914, 148). Clarke dates the production of N/NR Beakers to between 1750-1500 BC (1970, 128), Developed Northern Beakers to 1650-1550 BC (1970, 174) and Late Northern Beakers to 1600 and 1500 BC (1970, 189).

ACCESSORY VESSELS

One complete vessel and one fragment, which could be placed under this heading, have been recorded. The complete example was associated with the cremation burial found at Stone Bridge on the outskirts of Durham City, (NZ 259 414) (Trechmann, 1914, 170-172) (Fig.VI.6b, P7) and the fragment was associated with "Find 1" in the Hasting Hill barrow (Trechmann, 1914, 139) (Fig.VI.6a) (P6). The term "incense cup" was first used by Colt Hoare (1812-1821, I, 25) to describe small vessels, usually accompanying larger ones, in burials. Abercromby, however, (1912, II, 24), derided this as, "a term with nothing to recommend it". He preferred, "to speak of them as pygmy vessels or cups, a term which points to their size and does not presuppose any theory as regards their use". Since his sevenfold classification of these vessels, little work has been done on them and while some archaeologists still use the term "incense cups" to describe small vessels, not of recognisable and easily classified form, the writer has preferred to take a lead from Abercromby and not use the term. The term "miniature vessel" has also been eschewed in describing these vessel types. It was felt that this term invited comparison of size with other pot forms which were not relevant, and it also conjured up the idea that all vessels so identified were scaled down versions of larger, more readily classified, vessel types. As a result, the term Accessory Vessel was decided upon as most of these pottery types usually accompany other vessels of easily recognised form in funerary contexts.

Form and Decoration

The Stonebridge pot is plain and undecorated, with a small, flattened, base and a flattened rim. Its slightly bowed sides mean that its maximum diameter is around its mid point. The fabric is a pale brown colour throughout and in view of its small size the vessel may simply have been "pinched up" from a lump of clay and not coil built. Crushed stone and grits and ? crushed pottery have been used in the tempering.

The Hasting Hill fragment is a body sherd, decorated on both interior and exterior surfaces by incised, crossed, lines forming triangular spaces. Each alternate space is infilled with impressed dots. The fabric is grey-black in colour and tempered with crushed stones.

The Hasting Hill decoration may well have parallels in the designs found on the so called Aldbourne Cups of the south of England, and a similar incised dot and line decoration is visible on a small cup from Manton, associated with a grape cup and bronze, amber, and shale objects (Ashbee, 1960, 122, figure 45 and 128, figure 46).

Distribution and Context

Both examples come from the lower half of the Wear Valley. Stone Bridge is in the middle Wear section and Hasting Hill in the lower Wear Valley. The Stonebridge vessel occurred with two Collared Urns which had been placed one inside the other, though, unfortunately, its actual position in relation to these two vessels was not recorded. Trechmann speculates that it may have been inside the larger Collared Urn, mixed with the cremated bone (Trechmann, 1914, 172).

The Hasting Hill fragment was found among the bones of a cremation in a cist on the south side of the barrow. Trechmann mentions that "fragments" of this vessel were recorded, but only the one piece under discussion now remains (1914, 139). The cist was without a capstone and close to the surface, all the pottery finds (see "Associations" below) were fragmentary and mixed with calcined bones. This may suggest that the cist had been disturbed prior to Trechmann's excavation and the major parts of any accompanying vessels removed or broken.

Associations and Chronology

As stated above, the only recorded associations for the Stonebridge vessel were two Collared Urns and in the light of the chronology of these pot types (see below) an Early Bronze Age date may be suggested for the Accessory Vessel.

A similar broad date would fit the evidence from Hasting Hill where the associations included a fragment of a food vessel along with a flint core, a flake, and "an implement with secondary chipping" (all of these associations are now lost) (Trechmann, 1914, 139).

FOOD VESSEL URNS

Cowie has recently discussed Food Vessel Urns in northern Britain in some detail (1978). It is not proposed to enter into a long discussion here of the Wear Valley material, as it has already been dealt with in the course of his monograph.

Following ApSimon (1972), and Cowie, the term Food Vessel Urn has been taken to include all those vessels formerly identified as Enlarged Food Vessels and Encrusted Urns. Cowie (1978, 5-12) gives a detailed account of the reasoning behind this move and of the development of thought on Food Vessel Urns in general.

Four definite and one possible examples of the class are known from the study area; one dubious fragment from West Boldon (NZ 347 604), (Fig.VI.11a) (P12) two complete vessels from Humbledon Hill (no grid reference available) (Figs. VI.9, VI.10, Pls. VI.6 and VI.7), (P10 and P11), one from Hasting Hill (Fig.VI.8, Pl.VI.5), (P9) and one from Copt Hill, Houhgton-le-Spring (NZ 353 492) (Fig. VI.7) (P8).

Form and Decoration

The pot fragment from West Boldon, not recorded by Cowie, was classified as a Food Vessel Urn by Gibson (1978, 80, No. 115). The writer has examined the fragment and cannot agree with Gibson's stance, as the piece is far too small for a conclusive identification of the form. The decoration, which consists of a line of herringbone made up of oval impressions, makes it equally likely that the fragment is from a Food Vessel or Collared Urn.

The other four vessels possess most of the major morphological and decorative traits outlined by Cowie (1978, 14-31). All are basically bi-partite,having a high, well marked, shoulder dividing the vessels into two zones. To a greater or lesser degree, all have grooving above the shoulder, formed by horizontal raised mouldings or ridges built up from the body of the pot. Rim forms are everted and bevelled internally and externally on all examples and bases, where reconstructable, are flat and proportionately narrow when compared with the mouths of the vessels.

Cowie stresses that the general shape is remarkably consistent and that most Food Vessel Urns have a close morphological link with Food Vessels (1978, 14). In all the examples, decoration is confined to the area above and around the shoulder. The main techniques involved are simple incision and impression, though vessel 2 from Humbledon Hill, which in the past has been classed as an Encrusted Urn (Fox, 1927, 128), does exhibit more complicated traits (see below).

Incised herringbone decoration occurs on the Copt Hill (P8), and Hasting Hill (P9), vessels, while incised chevrons decorate the upper part and internal rim bevel,of vessel 1 from Humbledon Hill (P10). Oblique incisions, all aligned in the same direction, decorate the external rim bevel and the raised cordons of the Hasting Hill vessel, and a similar form of motif occurs on the body of the pot from Copt Hill.

The second vessel from Humbledon Hill (P11) is worthy of more detailed discussion. The internal rim bevel exhibits two rows of circular, stamped, impressions and similar motifs occupy the upper part of the shoulder moulding. The external rim bevel has a line of twisted cord decoration above what appears to be an applied clay strip with deep incisions. Gibson believes that individual pellets of clay were added to the rim bevel (1978, 84) but on personal inspection of the pot, the writer is inclined to agree with Cowie.

Below this the neck of the vessel is decorated by vertical whipped cord "maggots" and horizontal cord impressed lines. The zone below this, the cylindrical portion of the vessel, carries an applied zig-zag and the triangular spaces this creates are filled with simple incisions which intrude onto the applied zig-zag band.

On simple, macroscopic, observation, fabric type and quality vary considerably. The Copt Hill vessel has a buff pink fabric, tempered with some small/crushed stones. That from Hasting Hill is a hard red/brown colour, with dark tones on its interior and lighter patches on its external surface. The two urns from Humbledon Hill are in a buff/buff-orange fabric with crushed stone and some sand used in the tempering.

Distribution and Context

All the vessels with the exception of that from Copt Hill are from locations in the lower Wear Valley and with the exception of the possible "urn" from West Boldon (P12),all are from burial contexts. The Boldon fragment could conceivably be from the destroyed barrow on Down Hill recorded by Preston (1933, 109), though this must remain speculative.

The Copt Hill and Hasting Hill vessels were found inverted over cremations in cists, while the exact context of the Hunbledon Hill vessles is not recorded within the barrow.

Associations and Chronology

Artefactual associations are not recorded from the Copt Hill and Hasting Hill cists, though a third vessel, badly crushed at the time of discovery and now lost, was also recorded from Humbledon Hill (Greenwell, 1877, 441; Trechmann, 1914, 120). This lack of associations with Food Vessel Urns is a common feature (Cowie, 1978, 44) and in a detailed discussion of dating evidence from finds, Cowie has shown that a broad, Early Bronze Age, date is the only one that can be applied to this vessel form (1978, 44-52).

CINERARY URNS

Gibson (1978, 1) uses the term "Cinerary Urn" to denote all urn types with the exception of the Food Vessel Urns. In some ways the writer believes that this term is too wide ranging to be a meaningful classificatory heading. At its simplest it takes in any urn used as a repository for cremated bone and does not take any cognisance of the fact that there are morphological distinctions within the British Urn Series.

As a result the term is used here solely to classify three vessels, now lost, associated with cremation deposits from the Hasting Hill barrow (one example) (Trechmann, 1914, 140) (P13) and two from a cist on Tunstall Hill (Greenwell, 1877, 440; V.C.H., 1905, I, 208; Surtees, 1816, I, 249; Anon., 1880-1885, 184) (P14 and P15).

The surviving descriptions of these vessels do not allow for easy identification of pot type, though that from Hasting Hill may have been a Food Vessel Urn. As a result, to avoid error, the vessels have been classified under the all embracing heading of "Cinerary Urn".

Form and Decoration

It is difficult to be sure of the exact shape of the vessels under discussion. All are now lost, though some descriptive commentary survives for the Hasting Hill vessel. This had been "crushed and scattered" by previous excavation attempts and, although Trechmann collected all the fragments that he could, it was not possible to reconstruct the vessel form beyond the fact that it had a "smooth base and body", with a distinct shoulder, and, possibly, an internally and externally bevelled rim. Decoration was carried out by twisted cord impressions, possibly in a lattice design, in the area between the shoulder and the rim, and the ? external rim bevel exhitited "diagonal twisted cord ornamentation". The internal bevel was decorated with four concentric lines of twisted cord impression (Trechmann, 1914, 140).

No description of the Tunstall Hill urns survives and the only information which we have about fabric type and make up for any of the three, is contained in the remark that the Hasting Hill vessel was made of clay "very largely mixed with stones" (Trechmann, 1914, 141).

Distribution and Context

Both locations are in the lower Wear area and all three urns are directly associated with cremation burials. The Hasting Hill urn was found in the south-east quadrant of the barrow, at a depth of 9" below the surface. There is no record of any enclosing cist or pit. The other two urns, though, were from one cist and the fact that both were "filled with cremated bones" leads one to suspect that they were upright. There is no record of any covering barrow or cairn at Tunstall Hill.

Associations and Chronology

No direct artefactual associations are recorded for the Hasting Hill pot, but the two urns from Tunstall Hill were in the same cist as a Collared Urn. In view of this fact, and in view of the nature of the other finds from Hasting Hill, an Early Bronze Age date may be assigned to the vessels.

FOOD VESSELS

Fourteen food vessels, or fragments thereof, have been recorded from seven locations in the study area and the greatest number, seven examples, comes from the prolific barrow on Hasting Hill. The term itself is an ill defined one, used as it is to identify a variety of different pot types, e.g Yorkshire Vases, Hiberno Scottish Bowls, Southern Ridged Food Vessels and Northern Tripartite Vessels (Burgess, 1974, 182-185). All the reconstructable vessels under consideration here come under the heading of bi-partite or tripartite vases.

Form and Decoration

Four bi-partite vases and one tripartite vase have been definitely identified. The remainder of the vessels are either fragmentary or have been lost without being fully recorded. The latter is the case at Houghton-le-Spring (Trechmann, 1914, 128) (P17); Warden Law (NZ 376 502), (Trechmann, 1914, 166) (P28); Fatfield (Trechmann, 1914, 169) (P18); Batter Law, (NZ 406 459) (Trechmann, 1914, 162) (P16), and Hasting Hill, Food Vessel I (Trechmann, 1914, 139) (P19).

Four, West Boldon (Gibson, 1978, 58) (P29), and Hasting Hill Vessels III, V and VII (Trechmann, 1914, 141, 153 and 156) (P21, P23 and P25) are too fragmentary to allow any positive identification of form. Those from Warden Law, Batter Law and West Boldon seem to have been undecorated, and all the information we have for Vessel I from Hasting Hill is that "one raised line" was the only visible decoration (Trechmann, 1914, 139). Gibson has pointed out that,"Decoration cannot really be used as a significant feature for classification as different techniques and motifs may be combined on a single vessel",and that,"A ... significant distinction seems to be that between incised and impressed decoration, only very few vessels combining both" (Gibson, 1978, 7).

Twisted cord impressed decoration occurs on six examples, either as encircling lines, herringbones and chevrons or simple, vertical impressed lengths. Simple, circular, impressions occur on the Hasting Hill Vessel IV, (P22) and the Fatfield fragment (now lost) shows an amalgamation of incised lines and thumb impressions.

Four vessels are worthy of individual comment: the Steeple Hill Vessel I (P26), seems to be the only Food Vessel with a neck groove and stops from the study area. Greenwell (1877, 441) refers to the possible stops as "impressed lugs" and parallels its form with an unprovenanced example illustrated in his Figure 71 (1877, 86). The whole of the vessel was decorated with incised herringbone motifs.

Vessels No. V and VI (P23 and P24) from Hasting Hill both combine twisted and impressed decoration with incised motifs. Vessel V (P23) has two encircling, twisted cord, lines on the rim moulding and bevel and one on the shoulder. The neck area is decorated within twisted cord chevrons, while the belly and base have incised herringbone and chevron motifs. A vessel with similar neck decoration was recovered from Craigish, Argyll (Simpson, 1968, 206, Figure 49) and similar cord chevrons occur on a pot from South Chatton, Northumberland (Gibson, 1978, 76, No. 44). Vessel VI (P24), is represented solely by a rim fragment, decorated on both body and rim bevel by finely incised, closely spaced, chevrons, separated by thin lines of twisted cord impressions.

Vessel VII (P25) from Hasting Hill is of interest in that the underside of the base, which has a definite foot ring, is decorated with ten impressed dots in the form of a cross. An encircling row of dots occurs around the base of the vessel above an incised line, and above this is a further encircling, incised line. Impressed dot decoration occurs on vessels from Slingsby CXLIX and Ganton XXIX (Greenwell, 1877, 355 and 179). Cross motifs occur on vessels from Alwinton CLII (Greenwell, 1977, 86, Figure 71 and 424), Hepple (in twisted cord) (Greenwell, 1877, 91, Figure 79 and 424) and Newton upon Rawcliffe (Bateman, 1861, 212). Gibson records a similar motif

SITE	INVENTORY NO.	CONTEXT	REFERENCES
Batter Law	P16	Barrow mound	Trechmann, 1914, 162
Copt Hill	P17	Inhumation - no cist	Trechmann, 1914, 128
Fatfield	P18	Inhumation in cist	Trechmann, 1914, 169
Hasting Hill	P19	I - In cist with cremation	Trechmann, 1914, 139
Hasting Hill	P20	II - Barrow mound	Trechmann, 1914, 141
Hasting Hill	P21	III - In cist with cremation	Trechmann, 1914, 143
Hasting Hill	P22	IV - In cist with inhumation	Trechmann, 1914, 150-151.
Hasting Hill	P23	V - Barrow mound	Trechmann, 1914, 153
Hasting Hill	P24	VI - In cist with inhumation	Trechmann, 1914, 154
Hasting Hill	P25	VII - Barrow mound	Trechmann, 1914, 156
Steeple Hill	P26	I - In cist with inhumation	Greenwell, 1877, 442
Steeple Hill	P27	II - In cist with inhumation	Greenwell, 1877, 442
Warden Law	P28	Barrow mound	Trechmann, 1914, 162
West Boldon	P29	Insufficient data available	Gibson, 1978, 58

Table VI.1 Food Vessel contexts

on a vessel from Harbottle Peels (1978, 110, No. 43).

Fabrics range from buff/grey to red, to brown, and crushed stone and sand are among the main tempering media used.

Distribution and Context

All the examples under discussion come from the lower Wear area and all, with the possible exception of the West Boldon fragment, come from funerary contexts,being either actually associated with cremation, or inhumation burials, or from barrow mound material. Table VI.1 shows the context of these finds.

Gibson discusses Food Vessel contexts in the north of England in detail, (1978, 23-28).

Associations and Chronology

No direct associations are recorded for the vessels from Batter Law (P16), Warden Law (P28), Hasting Hill, Vessels II, V and VII (P20, P23, P25), Copt Hill (P17) and West Boldon (P29). However, Vessel I from Hasting Hill (P19) was accompanied by a fragment from an Accessory Vessel (P6) (see above), Vessel III (P21), was accompanied by an unburnt mammalian tooth (not identified), while Vessel IV (P22), was associated with a flint saw and flake and Vessel VI (P24) was associated with a flint splinter and a burnt ox tooth.

The two Steeple Hill pots (P26 and P27) accompanied a double inhumation of a man and a woman in the same cist (Greenwell, 1877, 441). A.similar double burial with a Food Vessel was recorded by Jobey at Dour Hill (Jobey, 1977, 204-207). On available C14 evidence the main occurrence of this vessel form seems to be around 1600 b.c. (Gibson, 1978, 146). However, Gibson suggests that the form may have appeared by c. 2000 b.c. (1978, 46) and,"entered the burial record somewhat later, in c. 1600 b.c., before being replaced c. 1450 b.c. by a variety of Middle Bronze Age cremation practices" (1978, 46). (See also Gibson, 1978, 45, Figure IV, 6).

COLLARED URNS

Seven examples of this vessel form have been recorded from the valley. Three, those from Tunstall Hill (P35), Fulwell (P31), and ? Humbledon Hill (P32), are now lost, while the writer has been unable to obtain detailed information about the vessel excavated in 1978 from Warden Law (P36) (A. Harding, pers. comm.). The two examples from Stonebridge (P33 and P34), are still extant and are now in the British Museum, while the vessel from Crawley Edge, Stanhope (P30), is in the Department of Archaeology's Fulling Mill Museum, in Durham City.

In his survey, Gibson lists only four Collared Urns from the study area within his Cinerary Urn class; Fulwell (P31)(Gibson, 1978, 95 unnumbered), Stonebridge 1 and 2 (P33 and P34) (Gibson, 1978, 99, No. 140 and one unnumbered) and Tunstall Hill (P35), (Gibson, 1978, 100, unnumbered). The writer believes that these vessels form such a distinctive morphological category that they deserve study in their own right and should not be subsumed in a general "cinerary urn" class.

Form and Decoration

Little is known of the form and decoration of the lost examples. The Fulwell vessel (P31), seems to have been decorated along the top and bottom of the collar by a twisted cord impressed line, the two being linked by sloping lines, again in twisted cord, Anon., 1905) while that recorded from Tunstall Hill (P35), (Greenwell, 1877, 441; V.C.H., 1905, I, 208; Surtees, 1816, I, 249; Gibson, 1978, 100) had chevron patterns on the collar, (no data is available concerning the technique of decoration). No information is available at all for the Humbledon Hill example (P32).

The three extant vessels (P30, P33 and P34), would all seem to belong to Longworth's Primary Series of Collared Urns, possessing, as they do, several of the features used by Longworth to distinguish this type, (Longworth, 1961, 267-268; Burgess and Varndell, 1978, 25). The Crawley Edge urn (P30), exhibits twisted cord lattice decoration on the neck and twisted cord hurdling, consisting of chevrons linked by parallel lines of twisted cord decoration, and there may be some evidence for the use of jabbed decoration on the shoulder. However, given the state of the fabric of the pot in this area, the evidence for the use of this technique remains tenuous. The fabric is buff to dark brown on its outer face, blackened at the core, and the inner face is black to dark brown in colour. The vessel has been heavily tempered with coarse grits up to 1 cm. across, and the outer surface, where surviving, shows evidence for having been smoothed over. The collar has clearly been applied as a separate band of clay.

The pot has been examined by Dr. Longworth, whose comments are included here. He believes the vessel to be, "a tripartite Collared Urn of the North-West style ... However, the combination of twisted cord hurdle pattern on the collar and twisted cord lattice on the shoulder is something which I have not seen before. Usually one or other component is reproduced in linear incision" (Longworth, in lit., 31.7.78). He lists the following vessels as parallels, using hurdling on the collar and lattice on the neck:-

Stanton Moor, Derbyshire, (Abercromby, 1912, II, pl. LXVIII, fig. 78)

Brackmont Mill, Fife, (Mears, 1936-37, 258, fig. 4).

Kingskettle, Fife, (Callander, 1920-21, 39-40).

Tara, Co. Meath, Eire, (Kavanagh, 1976, 350, No. 36; 388, fig. 21, No. 36).

Danby, North Yorkshire, (Abercromby, 1912, II, pl. LXXV, fig. 148).

The inclusion of the vessel from Stanton Moor is an interesting one, as work at this site in the 1920's and 1930's, (Heathcote, 1930; 1936; 1939), revealed very close parallels indeed for the structures of the cairn at Crawley Edge which produced the urn under study (see Chapter VIII).

Stonebridge, Vessel 1, (P33), is also tripartite. The fabric is brick red/brown in colour and tempered with large grits up to 9 mm. across. The collar is decorated with plaited, cord impressed, lattice decoration and the rim bevel exhibits two encircling lines in the same technique. The body below the collar is decorated with sloping, intersecting slashes. Vessel 2 (P34), is a much simpler, bipartite pot with an almost globular body, markedly concave collar, and sharp pointed rim with sloping internal bevel. The fabric is similar to Vessel 1 (P33). Decoration is confined to the collar only and is executed in twisted cord technique with at least six intermittent, but encircling, lines visible. The base has a slight ompholos appearance.

Distribution and Context

Only one example comes from upper Weardale (P30), three from the middle Wear Valley (P33, P34, P36) and three examples (P31, P32, P35) from the lower Wear. All come from funerary contexts, though information about the Tunstall Hill and Humbledon Hill examples is slight. That from Tunstall was found in a cist with two other vessels, while the example from Fulwell was found in a sandhill with an inhumation, covered by limpet shells and a large stone slab. As Gibson has pointed out (1978, 31-32) this is a strange occurrence, the normal context for Collared Urns being in cremation burial deposits.

At the Stonebridge site, Vessel 2 (P34), was found inside Vessel 1 (P33),"inverted over the calcined bones found in the larger urn" (Vessel 1), (Trechmann, 1914, 172). The burial may well have been beneath a mound. On available evidence the Warden Law urn (P36) came from a sand/gravel hill and was found accidentally.

The most reliable information about context comes from the site at Crawley Edge. The Crawley Edge urn (P30) came from a pit beneath a cairn, among a group of mounds constituting one of the first known cairnfield sites in the county. It was found in an upright position, with a ? clay packing across its mouth. The urn, in addition, was covered by a small, undistinguished, slab and the pot itself was located inside an oval stone setting (see Chapter VIII pp. 270-272 and Fig.VIII.13).

Associations and Chronology

Longworth (1961, 285-290), Burgess and Varndell (1978, 24-33), Gibson (1978, 45, fig. IV.6, and 46) and Burgess (1980, 95-97), have all discussed the chronology of Collared Urns, and all would agree that the series has its origins in the Peterborough tradition of Late Neolithic pottery and that they belong to the Early Bronze Age. However, as Burgess and Varndell point out (1978, 24), "knowing that a class of pottery is Early Bronze Age is of limited use because the Early Bronze Age lasted anything up to a thousand years depending on how the term is defined and on the attitudes taken towards radiocarbon dating".

The Crawley Edge Urn is associated with two C14 dates, 1400±80 b.c. (Har - 3323) and 1420±80 b.c. (Har - 3322) which would place the site in Burgess's Bedd Branwen Period (c. 1450 - 1250 b.c.) of the Early Bronze Age (Burgess, 1980, 115-131). Not in direct association with the urn, but from layers abutting the oval stone setting, in which the pit and urn were enclosed, came three fusiform shale beads and a finely retouched flint artefact (Fig.VIII.16). The urn may well have held a cremation, eroded through ground water percolation.

No C14 dates are available for the Stonebridge Urns, nor do we have any real dating evidence for the other examples. The Stonebridge vessels were found with a small Accessory Vessel, though the exact relationship is not certain (see above). The Tunstall Hill Urn was found in a cist with two other vessels, all of which contained cremations, while the Humbledon Hill pot came from a destroyed burial mound.

MISCELLANEOUS VESSELS

This section deals with pottery from two locations, the now destroyed Heathery Burn Cave in the upper dale (Greenwell, 1894, 87-114; Inventaria Archaeologia, 1968, GB55, 10(3) and refs. therein;

Britton, 1971, 20-38), and West Brandon (NZ 201 399) (Jobey, 1962) in the middle Wear. In all, these two sites have produced no more than twenty-two fragments of pottery which have been dealt with in a large scale regional survey by Challis and Harding (1975, I, 30-39; II, 25-26, fig. 45, No. 14-18).

Form and Decoration

Little can be said about the fifteen fragments from West Brandon. None was larger than, "three-quarters of an inch", all were undecorated and only one rim sherd of plain rounded character was recorded (Jobey, 1962, 25). All the pieces, with the exception of two body sherds, were in a pink/brown fabric with grey core. The two exceptions were pink throughout (Jobey, 1962, 25). The excavator believed that the fragments came from five separate vessels (Jobey, 1962, 25) (P44, P45, P46, P47, P48).

At Heathery Burn, on the other hand, at least five distinct vessel types were represented (Inventaria Archaeologia, 1968, GB55, 10(10) Nos. 189-196). These included a carinated bowl in brown fabric with internally bevelled rim (Fig. VI.17a), (P37), a ? straight sided vessel with internal rim bevel in orange/black fabric with crystalline tempering (Fig. VI.17b), (P38), a bowl with slightly concave neck and internal rim bevel in brown coarsely tempered fabric (Fig. VI.17c), (P39) and a further ? straight sided vessel with slight internally bevelled rim (Fig. VI.17d), (P40). The fifth definite vessel is represented by a sherd from the lower part of a flat based vessel in red/brown fabric with ? quartz tempering (Fig. VI.17e), (P41).

Further indeterminate base sherds and two wall sherds of coarse brown fabric were also recorded (P42 and P43). Again, none of the vessels from Heathery Burn exhibits any decoration. Hawkes and Smith (1957, 158-160) have discussed this pottery and Challis and Harding (1975, I, 32-39) provide detailed information on various morphological parallels from other sites. As a result no detailed discussion of parallels will be entered into here. In passing it is worth noting that vessel forms similar to those at Heathery Burn have been recorded from Ampleforth Moor, Eston Nab and Boltby Scar, all in Yorkshire (Challis and Harding, 1975, II, 105, fig. 45).

Distribution and Content

All the pottery recorded from West Brandon comes from the bottom of post holes, either isolated examples, or associated with house B, area I, or from the wall trench of house B (Jobey, 1962, 25). This may well account for the fact that the material was not destroyed by later ploughing. The Heathery Burn pottery came, along with all the other Heathery Burn material (see Chapter VII pp, 234-237), from a now destroyed cave site about one mile north-west of Stanhope. The artefacts were discovered intermittently in the course of quarrying from around 1843 to 1872. In general they lay on a sand and gravel deposit within the cave, sealed by a stalagmite layer (see Chapter VII pp. 234-237).

Associations and Chronology

The pottery from the wall trench of house B at West Brandon was associated with worn and broken saddle quern fragments, used as packing stones. Jobey (1962, 25) speculated that these came from either house A or the smaller, earlier, house,in his area 5. A sandstone rubber was also found in the wall trench (1962, 26). After acknowledging the paucity of the dating evidence for the site, Jobey placed its occupation, tentatively, somewhere in the second or third centuries B.C. (Jobey, 1962, 29 and Chapter IX pp. 309-310 below).

The chronology and associations of the Heathery Burn finds is discussed,generally,. in Chapter VII. In the context of the present discussion it is sufficient to note that the associated metalwork forms from the cave suggest a generalised date ranging from the eighth to the sixth centuries B.C. (Burgess, 1968, 29-30; Challis and Harding, 1975, I, 26-30; Champion in Megaw and Simpson, 1979, 310, 319-20, 323, 328; Hawkes and Smith, 1957, 131-198). A fuller discussion of the metalwork and other associations will be found in Chapter VII below.

As stated at the outset the cermaic material from the Wear Valley is of a limited range and, as a result, discussion of it is itself limited. It is hoped that the preceding chapter has gone some way to elucidating the major features of the pottery and that it has added to Cowie and Gibson's recent treatments of selected vessel forms from the region (Cowie, 1978; Gibson, 1978). An essential component of any future programme of research on prehistoric pottery in the region in general, should be the petrological examination of vessel fabric to build up local and regional fabric sequences. This will allow for a fuller understanding of the nature and methodology of pottery manufacture in both the Wear Valley and the north east as a whole. It is hoped that typological studies like this one may help in the formulation of these more detailed research schemes and that the much needed petrological work will not be too long in coming.

CHAPTER VII

BRONZE METALWORK

The prehistoric bronzework of the Wear Valley has never been subjected to a full typological discussion before, though certain finds, most notably the Heathery Burn hoard have undergone a detailed analysis by many workers (see below). While it seems that at the present time the typological approach has gone out of fashion, with some researchers (Burgess and Coombs, 1979, i), suggesting that,"the big advances (in metalwork studies) will come where the typological approach is combined with a wider spectrum of methods, for example metallurgical and numerical analysis and social interpretation", (a view with which the writer would tend to agree), there does still seem to be a need for a basic understanding of the artefacts in an understudied area like the Wear Valley. It is the aim of the present chapter to provide this and to put the available material into a regional context.

From the outset it should be pointed out that, as Greenwell (1877, 44) and Steer (1938, 22-24) both noted, finds of metalwork in the north-east in general are rare. Only nineteen individual stray finds are known from the study area, in addition to the Heathery Burn hoard and a smaller, less well known hoard from Haggate on the south side of the upper dale, opposite Eastgate (NY 953 387). In the following discussion it is proposed to treat these hoards separately from the stray finds.

STRAY FINDS

Of the nineteen stray finds known at the time of writing, four are from the upper dale, one is from the lower dale, seven are from the middle Wear, one comes from around Chester-le-Street at the interface of the middle and lower Wear and six finds are known from the lower Wear Valley.

Distribution (Fig.VII.1)

In the upper dale, none of the stray finds comes from the floor of the main valley. The wing flanged axe from Fawnlees (?NZ 061 384), (M9), (Fig.VII.6a), and the spearhead from Bishopley Crag, (?NZ 021 360),(M3),(Fig.VII.3b), both come from areas of low base status Brown Earth soils, in locations set well back from the main river at heights of 900' O.D. (276 m approximately) and 750' O.D. (230 m approximately) respectively. The axe comes from the gently undulating slopes overlooking the Thornhope and Waskerley Becks,while the spearhead is from a spur of land which overlooks the Bollihope Burn and the main river valley.

The tanged spearhead from Burnhope Fell, (?NY 843 388), (M2), (Fig. VII.3a), and the "rapier fragment" from Chapel Fell, (no grid reference), (M6), (Fig.VII.5b), present some problems. The former piece was found in the course of the building of Burnhope Reservoir and must have been found around 1000' O.D. (310 m approximately), in an area of peaty gley soil, while on first analysis it did not seem possible to provenance the latter implement with any accuracy at all. The note of its exhibition to the Society of Antiquaries, Newcastle (Anon. 1931-32), merely states that it was found on,"Chapel Fell, South of Westgate, St. John's Chapel, Co. Durham above the 2000' contour",and the problem of the exact location has also been compounded by uncertainties over the implement's identification.

The N.M.R. Cards at Durham University have no record of the "rapier fragment" but do note a "spearhead" from Swinhope Head (NY 898 332). No further documentary reference to this spearhead has been found but Graham (1939, 15), records that,"A little over thirty years ago", (i.e. around 1908-10), "a lead bronze dagger, now in Newcastle Museum", was found by a shepherd on Swinhope Head.

The "dagger", "spearhead" and rapier fragment may well have been one and the same thing. The implement seen by the present writer does appear to have been re-ground to form a small knife blade. It also has the date 1934 incorporated into its museum accessions number and so would have been at Newcastle well before Graham wrote his book.

If we can accept the above argument,then it may be possible to locate the piece more precisely at a height of around 1800 ft. O.D. (553 m approximately) on top of the ridge line which divides Weardale from Teesdale, in a small pass,now occupied by the modern Newbiggin-Daddry Shield road, (?NY 897 333).

Similar problems of imprecise location occur with the transitional palstave from Howden-le-Wear, (no grid reference), (M12), Fig.VII.7) and the two axes from Durham City, (no grid reference) (M1), (M8), (Figs. VII.2, VII.6a). Howden-le-Wear itself is located ar around 400 f O.D. (123 m approximately), in an area of low base status Brown Earth soil in the broad valley of the Beech Burn Beck, a tributary of the main river. The Durham City axes were found somewhere in the city in the course of the sinking of a well. Nothing more can be added to this.

Further locational information is also unavailable for the Binchester dirk (no grid reference), (M5), (Fig.VII.5a), the "flanged axe" from Eshwood in Brandon Parish, (M11) (though the N.M.R. cards at Durham give a grid reference, NZ 2101 4170); and the socketed axe from Brandon itself, (M15).(Fig. VII.8a).

The two finds from the Willington area, (M4), (M10), are better recorded. The spearhead, (M4), coming from the Jubilee Gravel Quarry (NZ 205 345) at a height of 150 ft. O.D. (46 m approximately) on the river terrace, and the axe from Knackshivan Farm (NZ 187 367), (M10), at a height of around 700 ft. O.D. (215 m approximately) in an area of undulating land with low base status Brown Earth soils. No detailed information is now available for either the Broomyholme shield (?NZ 233 505), (M16), (Pls. VII.1 and VII.2) or the socketed axes from the area of Monkwearmouth, (M13), (Fig. VII.8a, and Hylton, (M14), though grid references can be assigned to the possible swords from Hylton, (M17, M18, M19) and the dirk from Claxheugh, (M7). All were found actually in the river, with the swords being located at NZ 351 570, NZ 355 574 and NZ 362 576 respectively and the dirk at NZ 359 376. The possible significance of this location will be discussed below.

Circumstances of Discovery

Detailed information on this topic, where available, can be found in the relevant Inventory entries. Reference will only be made here to a few specific pieces, where circumstances of discovery raise points of interest and necessitate some comment.

The Burnhope spearhead, (M2), and the side-looped spearhead from Bishopley Crag, (M3), were both found in the course of constructional and quarrying work in 1936 and pre-1911 respectively. That both pieces were actually observed and recovered is almost certainly due to the fact that building and quarrying were not heavily mechanised in the periods in question, thus allowing closer contact between workman and potential find. It is doubtful if they would have been spotted had modern methods been employed in both processes. Similar observations have been made by Wymer (1968, 8) with regard to the fall off in the discovery of flint hand axes from the southern river gravels in relation to increased mechanisation.

In the lower Wear Valley, the material from Hylton and Claxheugh was presumably found in the course of dredging the river. The V.C.H., which lists four of these finds, also lists several more bronzes found in seemingly similar circumstances, from the Tyne (V.C.H., 1905, , 207) and dredging at Hylton has also produced two log boats of uncertain date (Whitcomb, 1968; McGrail, 1978, I, 217-220). While material from the river is difficult to explain away satisfactorily further comment is necessary.

The mouth of the Wear begins to narrow at Hylton (NZ 352 572) and today it is an important bridging point. It may be that in prehistory it was also a crossing point and that these pieces represent accidental losses in the course of one or more such journeys. It may also be that the material represents artefacts eroded from settlement sites located on the river banks either higher up stream or around Hylton. If this is the case then the latter location is to be preferred as none of the pieces shows any evidence for rolling. A further possibility is that the implements represent votive deposits and were intentionally thrown into the river. Burgess (1974, 196-197) has speculated upon the possible nature of water cults in the Bronze Age period in Britain and Ehrenberg (1980, 1-15) has discussed further possible reasons for occurrence of bronze metalwork in rivers.

TYPOLOGICAL DISCUSSION OF THE STRAY FINDS

(A) FLAT AXES

The example from Durham City, (M1), (Fig.VII.2), is the only flat axe from the study area. Typologically it fits into Britton's Broad,or Thick Butted,axe classification (1963, 260-261) and was illustrated by him (1963, 260, Fig. 1). Similar implements from Ireland have been termed "Type A" (Case, 1966) and "Lough Ravel" type axes (Harbison, 1968 and 1969) and Coles in his survey of Scottish Early Bronze Age metalwork follows Case's terminology for these implements (1968-69, 2).

The Durham City example, (M1), has all the features of the type as described by both Coles and Britton, exhibiting a roughly trapezoidal plan, a typically broad butt forming a right angle with the sides and a blade whose width is less than twice that of the butt. The sides of the implement also form a smooth concave line from butt to blade. All of these features distinguish Type A from Britton's "thin butted" types of his Migdale-Marnoch tradition (Britton, 1963, 263-264).

The metal used for this type of axe is always copper (Britton, 1963, 261) and we are fortunate that the Durham example has been chemically analysed (Gowland, 1906, 23). Britton's work (1963, 261-2) includes a table comparing the analysis of the Durham City axe with other examples of the type. Lack of any further chemical analysis of Early Bronze Age material from the north-east renders these figures of little comparative value at the moment. Further work in this field is essential in the region.

Parallels and Chronology

Broad butted axes occur only rarely in Britain. Burgess can only cite forty copper axes of all types in the whole of the British Isles (1974, 307) and Coles records only nine examples from Scotland (1968-69, 2), while the present writer could find no published examples from Northumberland, Yorkshire, Lancashire, Cheshire or Cumbria.

In terms of general parallels though, one might point to the rough casting from Tonderghire Wigtown (now lost) (Britton, 1963, Fig. 2; Sinclair (ed.) 1795, 285-6; Callander, 1922-3, 125, Fig. 1 and 126), and Coles illustrates several more examples (1968-69, Fig. 1 especially No. 3 from Knock and Maize, Wigtownshire, No. 4 from Lanarkshire, and No. 6 from Minto in Roxburghshire).

Associations with this axe are rare, the only certain one being in the hoard from Moel Arthur, Denbighshire (Britton, 1963, 311) which consisted of two broad butted axes and one thin butted example. If we are to believe the information available in the British Museum about the context of the Durham axe, the find takes on more interest, being associated with a haft flanged axe of Middle Bronze Age date (see below). If we accept this then the finds should possibly be viewed as a small hoard, or part of a larger one, now lost.

The general lack of associated finds does cause problems with the chronology of broad butted, flat axes. Copper working would seem to stand at the head of the prehistoric metal working tradition of the

British Isles, however, how long the purely copper working phase lasted,and just what its origins were,is a matter of debate (Hawkes, 1960; Case, 1966). Burgess (1974, 191) has suggested that the mass of British copper implements should be assigned to an Irish, non Beaker origin, though he does allow that some of the material may have been of local manufacture. Following both Coles (1968-69, 10) and Burgess (1974, 192) a pre- or early Beaker date may be assigned to the Durham City axe and it would appear to fit into Burgess's Knocknague industrial phase, dating to around 2,200-2,000 BC. This piece may well be of local origin though its metallurgical analysis does compare well with other Irish examples of the type (Tylecote 1962, Appendix - Table A, 319, ff).

(B) <u>TANGED BRONZE SPEARHEADS</u> (Fig.VII.3), (M2)

As early as 1881, Evans pointed out the rarity of tanged spearheads (1881, 257) and this would still seem to be the case. Britton (1963, 305, Table 9) records only fifteen examples from hoards of the Arreton Tradition in the south and south-west of England, and Coles (1968-69, 88), can only document two provenanced examples from the whole of Scotland. Burgess and Cowen's general map of tanged spearhead distribution (1972, 176, No. 3) shows a total of twenty four examples from England, Scotland and Wales, with four from Ireland, while Gerloff (1975, 252), lists thirty eight English examples. Needham has recently re-examined tanged spearheads in the light of a find from Lightwater, Surrey (1979, 1-39).

The southern examples usually have a kite shaped blade with grooved decoration and a mid-rib, or central thickening, which gives a pointed, or keeled, section to the blade. The tang is usually flat with a single terminal rivet hole. The Burnhope example, (M2), does not conform strictly to this pattern as the blade could not be called kite shaped,nor does it possess the decorative grooving of the southern examples. It does, however, possess a central thickening which gives the implement its almost rectangular cross section. It may have possessed a terminal rivet hole, but the tang is fractured at this point.

Parallels and Chronology

Tanged spearheads make their first appearance in Britain during Burgess's Early Bronze Age Industrial Stage V, (1974, 193), which probably began by the sixteenth century BC. It is typified in the south-east of England by the Arreton Tradition of metalworking, (Britton, 1963, 284-297), which saw the introduction of many new bronze artefact types.

On the whole, parallels for the Burnhope spearhead are hard to find, as its simple cross section and undecorated blade set it aside from southern examples of the same basic tradition. Similar, unassociated examples, are known, i.e. from Sherburn, Yorks. (British Museum, W.G. 2021; Evans, 1881, 223), and Whitehaugh Moss, Muirkirk (Ayreshire) (National Museum of Scotland D.G. 88; Childe, 1935, 145, Fig. 38(i)), but perhaps the best available parallels come from Manchester and Nelson (Lancs.) (Fig.VII.4).

The Manchester example has a similar overall blade shape, though its section is slightly more oval than the Burnhope example. The tang appears to be broken just above the rivet hole. Thus, in general appearance, it is not unlike the example from the dale and in terms of overall length it measures 22 cms, with a tang length of nearly 7 cms (Bu'lock, 1961, Fig. IV, No. 1; Davey and Forster, 1975, No. 14). The spearhead is now in Manchester Museum (Accessions No. 09227). The Nelson specimen is better preserved than both the Burnhope and Manchester examples (V.C.H., 1907, I, 234, Fig. 21). It resembles the Burnhope piece very closely in section form and measures 22.8 cms in overall length, with a tang of almost 8 cms and a well preserved rivet hole. It is now in "Mr. Lord's Museum, Settle" (Davey and Foster, 1975, No. 5).

(C) SIDE LOOPED AND SOCKETED LOOPED SPEARHEADS

Only two examples, now lost, are recorded from the study area. The Bishopley Crag Quarry find was exhibited to the Society of Antiquaries, Newcastle, in 1911-12 and the only illustration which remains is the photograph accompanying the note of its exhibition (Anon, 1911-12, 19) (M3) (Fig.VII.3). The Willington example was also exhibited to the Society of Antiquaries, Newcastle on April 24th 1940 and a note on the piece, including a photograph was published by Richmond (1940, 143-144, illustrated, p. 136), (M4).

Both spearheads fit into Hawke's and Smith's "side looped" category (M.A. Smith, 1959, 180), the "Class IV" type of Greenwell and Parker Brewis (1909, 459); having a leaf shaped blade,curving from tip to base and possessing loops on the socket roughly mid way between its mouth and the base of the blade. Coles (1963-64, 104) puts this type of spearhead in his "Class D" and points out that the loops are usually flattened, a feature which is visible on both examples under study. The socket is usually either circular or angled, and while we have no information on this point for the Bishopley Crag example, the Willington spearhead seems to have had a circular socket (Richmond, 1940, 143). Several examples of this type,including both Wear Valley pieces,have a rib along the socket,while the usual form of decoration, ridging along the blade converging at the tip, is visible on the Bishopley find but not on that from Willington.

Coles (1963-64, 104) gives the size range of this type as from,'just under 3" to about 8"',with a small sub-class that is "much larger". Smith on the other hand, working on material from the south of England,puts the size range at between 4-6" long with examples rarely more than 8" (Smith, 1959, 180). Side looped spearheads have a wide distribution throughout Britain and Coles (1959-60, Map 2) shows the northern pattern.

Parallels and Chronology

In southern Britain almost all the associated finds of side looped spearheads belong to the "Ornament Horizon" of the Middle Bronze Age (Coles, 1959-60, 18 and M.S. Smith, 1959, 180), and Hawkes (1941, 128-131) noted the "common" occurrence of these general types of spearheads in connection with Deverel-Rimbury settlements such as Thorney Down and South Lodge Camp. In the south then, side looped spearheads fit into Burgess's Taunton phase of metalworking which began around 1300 BC (Burgess, 1974, 303) and ran on until about 1100 BC (Burgess, 1974, 170-171, Fig. 26). However, he has argued that these implement types may have been present in the preceding Acton Park phase (circa 1400-1300 BC) (1974, 201, see especially footnote 227).

In a purely northern context, Burgess has placed the side looped spearhead in his regional Hotham Carr phase, c. 1200-1000 BC, characterised by the material from the Hotham Carr hoard (Yorks) (Evans, 1881, 84, 92, 439, 440, 468 and 527; Burgess, 1968, 3, and Fig. 3). He has also argued, on the basis of continental evidence (Butler, 1963, 98-105; 215-218), that they may have been current in his earlier Pickering phase (1400-1200 BC) (1968, 3 and Fig. 2), though there are no firm British associations from this context.

Parallels for the Willington spearhead are cited by Richmond (1940, 43) but direct parallels for the Bishopley Crag example are difficult to find.

(D) DIRKS AND RAPIERS

Trump has defined three distinct groups of dirks and rapiers, mainly on the basis of butt shape (1962, 80-102) and she distinguishes between daggers (any weapon less than 21.6 cms long), dirks (any length between 21.6 cms and 35.5 cms) and rapiers (any weapon longer than 35.5

cms). This work was strongly criticised by Coles (1963-64, 82-156, especially 111-114) and in 1968, in a study of dirks and rapiers from Durham and Northumberland, Burgess put forward a new classification of these implements ,defining dirks and rapiers as,"weapons characterised by a relatively narrow, elongated blade having parallel or slightly converging edges, with a hilt plate usually of trapezoid or sub-rectangular form, which is either perforated or notched to take rivets securing a separate handle". He produced four distinct implement categories based on blade cross section (1968, 3, Fig. 1).

Of the three examples from the study area that from Binchester (M5) (Fig. VII.5),falls into his Group I, having a ribbed and grooved blade and rounded midrib, the Chapel Fell example, (M6) (Fig. VII.5), is of his Group II, with a ridged blade of flat lozenge section and the Claxhaugh find, (M7) (Fig. VII.5), fits into his Group IV having a blade of "flat or flattish" mid section. All three examples should be classed as dirks.

The Binchester and Chapel Fell finds both show definite evidence for re-use,presumably after breakage. The former, having broken at its hilt, has been hammered and notched for re-hafting, while the latter has been re-ground and is very worn. Such re-use of broken blades is a common occurrence (Burgess, 1968, 6).

Parallels and Chronology

Burgess (1968a, 7-15) lists several possible parallels for all three pieces and it seems unnecessary to repeat his work here. In terms of chronology all three examples would fit into a general Middle Bronze Age context with the Group I and II finds relating to Burgess's Acton Park phase of the first part of the Middle Bronze Age (approximately 1400-1200 BC) (Burgess, 1974, 203). The Group IV,Claxheugh,dirk would seem to belong to the final developmental stages of the Irish/ British dirk/rapier series in the Penard Phase (circa 1100-900 BC) (Burgess, 1974, 205).

(E) HAFT FLANGED AND WING FLANGED AXES

In addition to the haft flanged axe from Durham City in the middle Wear (M8) (Fig.VII.6a), and the wing flanged example from Fawnlees in the dale (M9) (Fig.VII.6b), we also have documentary evidence for a "winged" axe from Knackshivan Farm, Willington (Anon, 1938-39, 149) (M10) and another "flanged axe" from Eshwood near Brandon (M11) (N.M.R. Cards, Durham University, N. grid reference NZ 2104 4165). However, both these pieces are now lost.

A full typological study of British flanged axes has not yet been carried out, however pioneering work was done by M.A. Smith (1959, 168-175) who was in fact the first to use the term "haft flanged axe" (1959, 172-173). Burgess (1962, 92) and Eogan (1962; 1964) have studied the Welsh and Irish material respectively, but the most recent study was that of the Scottish finds carried out by Coles (1963-64, 82-156, especially 82-103). In 1963 Butler developed a supposed overall typology for bronze axes (1963, 27) based on his work on Bronze Age connections between Britain and N.W. Europe. This was subsequently queries by Coles (1963-64, 84) who has himself classified the Scottish flanged axes into:

(a) Class II - those with convex flanges

(b) Class III - those with angled flanges.

This classification has, in turn, been attacked by Burgess (1968, 41, n.9) and in order to avoid possible confusion Smith's 1959 terminology has been retained in this discussion.

Haft flanged axes like the Durham City piece, (M8), have their flanges confined to the hafted portion of the axe with little or no continuation down the side of the blade. They may be furnished with a slight rib or ridge as a stop device (M.A. Smith, 1959, 172-173) but this is lacking on the Durham City example. The term "wing flanged" axe was first used by Childe (1930, 63) for those axes which developed out of what Smith was to later call the haft flanged type. As can be seen on the Fawnlees example, (M9), the flanges show a heightening and a supposed strengthening and in some cases they are further shortened to resemble "eared" protrusions.

Smith and Coles's distribution maps (M.A.Smith, 1959, 174-175 maps 4a and 4b; Coles, 1963-64, 93, Fig. 4 and 99, Fig. 7) can be used to compare the overall distributions of the two types nationally, showing the widespread,but sparse,distribution of haft flanged types and the more concentrated, regionalised spread of the wing flanged examples. The latter have a massive concentration in the north of England, with the most frequent occurrences in Yorkshire, while the former also show a slight concentration in this region.

Parallels and Chronology

Parallels for both types are too numerous to mention in detail in the north. The reader is referred to Coles (1963-64, 90-91, Fig. 2 especially No. 1 and Fig. 3), Burgess (1968), Davey and Forster (1975, 24-36, especially No. 24) and Evans (1881; 70-106) for examples.

Haft and wing flanged axes fit into a general Middle Bronze Age context and M.A. Smith (1959, 173) and Burgess (1974, 201) have both argued that they are Irish developments which came "early" across the Irish Sea. Burgess places the initial development of the haft flanged axe nationally in his Acton Park phase and regionally in his Pickering phase of metalworking (c. 1400-1200 BC) while he places the development of the wing flanged type in his national, Taunton, regional Hotham Carr, phases (c. 1200-1000 BC) (1968, 3).

(F) "TRANSITIONAL" PALSTAVES

Only one example, that from Howden-le-Wear (M12) (Fig.VII.7), falls into this category. The term was first used by Smith to define a narrow bladed palstave type,either looped or unlooped,which was, she thought, earlier,both typologically and chronologically,than her "late" type palstave which she placed in the Late Bronze Age (1959, 184). In his study of Middle Bronze Age metalwork in the south of England, Rowlands has preferred to use the general term "narrow blade palstaves" in discussing these axes (1976, 36). The Howden-le-Wear find shows all the main characteristics of the type, exhibiting a narrow, only slightly splaying blade, well defined stop ridges and a single loop, though it lacks the trident or median rib decoration noted on some finds (Rowlands, 1976, 38).

Butler (1963, 66) suggested that they were introduced into Northern Europe from Northern France during the latter part of his Ostenfeld phase and as far as southern Britain is concerned, Rowlands is prepared to accept an initial Northern French origin for this axe form (Rowlands, 1976, 36). He does, however, regard the type as, "An insular tradition in looped, narrow blade palstaves", established in Britain from primary imports or direct copies of French forms (1976, 38). Their presence in Late Bronze Age hoards in Britain has been noted many times (see for example, Clark and Godwin, 1940, 58-66; Burgess, 1968, 7-15).

Parallels and Chronology

In the north the transitional palstave is characteristic of Burgess's Wallington Tradition (c. 1000-700 BC), (1968, 7; 1974, 170). He records at least thirteen to fifteen hoards from northern contexts, which belong to this phase (1968, appendix 2) and of those which contain palstaves, eleven examples include transitional specimens, and four of these - Wallington, Shelf, Roundhay and Carr Moorside - have several examples.

Fifty six examples are known from thirty three locations in northern England with a maximum concentration in Yorkshire. Burgess gives a full list of individual finds which could be used as parallels for the Howden-le-Wear axe (Burgess, 1968 , 65-66).

(G) SOCKETED AXES

Three examples have been recorded, one from the middle Wear at Brandon (no grid reference) (M15) (Fig.VII.8b), and two from the lower Wear Valley at Monkwearmouth (?NZ 399 579) (M13) (Fig.VII.8a) and Hylton (no grid reference) (M14). The Monkwearmouth axe (Lowther, 1980, 8-11) was initially recorded by Stukeley and can be placed firmly into the "Yorkshire", three ribbed class of socketed axes, (Fox, 1933, 19), while that from Hylton (V.C.H. 1905, I, 207; Whitcomb, 1968, 300) is now lost and cannot be so easily classified. The Brandon axe (M15) is a plain socketed form with simple moulding around the socket mouth.

Parallels and Chronology

Socketed axes of Yorkshire type and plain form occur frequently in Burgess's Heathery Burn Tradition of Late Bronze Age metalworking (1968, 19ff). Indeed, both types are well represented in the Heathery Burn and Eastgate Hoards from the valley (see below), one half of a casting mould for the Yorkshire type coming from Heathery Burn.

Burgess (1968, 30, 47, 56) documents many parallels for both forms in northern England and the reader is referred to works cited below in the section on the Heathery Burn Hoard for a fuller discussion of axe chronology. In the absence of the Hylton find nothing can be said about its possible parallels.

(H) BRONZE SHIELDS

One fragmentary example, found in 1802 by a Matthew Foster in draining a peat bog at Broomyholm near Chester-le-Street in the middle Wear Valley has been recorded (?NZ 233 505) (M16) (Pls. VII.1 and VII.2). A Mr. John Bell of Gateshead, in a letter to Charles Roach Smith dated 11th July 1846, states that the piece, when found, was "quite perfect" and goes on to give further information about the fate of the shield after its discovery; "the front or face of brass or bronze, lined or backed with wood and leather, which latter, when it became dry, soon fell to pieces and the bronze, after being kept by the farmer until it got broken, was given by him to a friend of his, a silversmith in Newcastle.who after keeping it for some years as a show in his shop gave it to the Antiquarian Society" (Anon, 1917, 71).

Evans (1881, 351) records the piece and speculates that it may be the example mentioned to him by Sir Samuel Mayrick as being dug up near Newcastle and cut up by the finder so that all of his friends might have a piece. The fragments, now restored, are in the Society of Antiquaries Museum, Newcastle-upon-Tyne (Accessions No. 1814, 16) (Pls. VII.1 and VII.2) and an examination of them does not lend any support to Evans' speculation.

The shield is one of the Yetholm type, named after a find of shields from Yetholm in Roxburghshire, Scotland and studied in detail by Coles (1962, 156-190, especially 165-169) in his survey of European bronze shields. The Broomyholme example exhibits all the major features of the type set out by Coles (1962, 165-166) being approximately 24" (610 mm) in diameter and having twenty six rows of ribs alternating with twenty six rows of small bosses of approximately 4 mm in diameter (Pl.VII.2). No trace of the wood and leather mentioned above, survives. Coles discusses the technology of these shields in detail (1962, 175-185), the Broomyholme example being a beaten sheet with punched and raised bosses and ribs. In terms of the context of the find, the Broomyholme shield is one of thirty out of thirty six noted by Coles as coming from peat bogs or rivers. As a result of this, and given the care taken in manufacture, Coles suggested that the shields may have been designed as ceremonial or ritual objects (1962, 185).

Parallels and Chronology

When Coles wrote in 1962, nineteen of the then known total of thirty one British/Irish bronze shields were placed in this Yetholm group. Parallels in terms of overall shield size, number of boss and rib rows and boss size,might be seen in examples from the Thames near

Woolwich, (now lost) (Coles, 1962, 187, No. 3) and Bagley near Ellsmere, Salop (Coles, 1962, 187, No. 19). Two additional finds, those from Ingoe, Northumberland (Coles, 1962, 188, No. 22) and Aydon Castle, Corbridge, Northumberland (Coles, 1962, 188, No. 21) are very fragmentary but would seem to have differing boss sizes to that from Broomyholme.

Coles (1962, 163-169) and Needham (1979a,129-133) have both discussed the chronology of the Northern European metal shields in general and the British series in particular. On the basis of the rib and boss motif and available associations (which are few) Coles suggests that the Yetholm series should not be dated to earlier than the eighth century BC (1962, 166-167) and Needham has suggested that the Yetholm, Harlech and Coveney classes are all coeval (1979a,132) fitting into a Late Middle Bronze Age - Early Late Bronze Age context (1979a, 132, Fig. 12).

Given the problems of discussing the chronology of these artefacts discussed by both Coles and Needham, a firmer dating for the Broomyholme shield may not be possible.

(I) BRONZE SWORDS

Some confusion surrounds the actual number of bronze swords which have occurred as stray finds in the study area. Two definite examples, (M17, Fig.VII.9a and M18, Fig.VII.9a) have been recorded from the river at Hylton (Whitcomb, 1968, 300-301) and these are now in Sunderland Museum. However, a third possible example, from the Wear near Hylton Dene (NZ 362 576) (M19), has also been noted. This latter find cannot now be traced and Miket (pers. comm.) has suggested that there may be some confusion between this piece, supposedly found in 1885 (Mitchell, 1919, 4), and M17 supposedly found in 1910.

M17 was presented to the Museum by a Mr. D. Waun, but was reportedly dredged from the Wear near Hylton Ford by a Mr. Mervyn Wake. M19, which was allegedly dredged from between Hylton Dene and Parks Nook was, for a time in 1892, in the possession of a Mr. H. H. Wake (Potts, 1892, 59) and Miket has suggested that this fact may indicate that the two swords are one and the same, confusion having arisen over the date of discovery. Against this, though, must be set the fact that the 1885 find is said to have been in perfect condition, while the 1910 discovery lacks its hilt.

Both extant swords are of Ewart Park type (Cowen, 1931, 192-193) and both hilts show evidence for ? modern alterations.

Parallels and Chronology

The Ewart Park sword is the archetype of Burgess's Ewart Park phase of Late Bronze Age metalworking and as such would range in date from the eighth to seventh centuries B.C. (Burgess, 1974, 209). The form itself is a regional development influenced by the continental Gundlingen sword (Burgess, 1974, 213) and can be widely paralleled in northern England and Scotland. Parallels within the Wear Valley, and Co. Durham in general come from the Heathery Burn hoard (two examples) and the recently discovered Gilmonby Hoard, which produced three Ewart Park sword hilts (Greenwell, 1894, 92-93; Burgess and Coggins, 1981, 13). Individual finds such as that from Medomsley (Robinson, 1891-92, 215; Burgess, 1968, 30, Fig. 20, No. 2), the example dredged from the Tyne (V.C.H. 1905, I, 207) and that from South Shields (Anon. 1892, 160-161), should also be noted.

Cowen (1931, 185-199) and Burgess (1968, passim) give a full account of the development of the type and discuss its major characteristics in detail.

THE HOARDS

(A) The Eastgate (Hag-gate) Hoard (M20)

The Eastgate Hoard, which consists of some fifteen pieces, is probably the least well known of the two hoards of Bronze Age metalwork from upper Weardale. It consists of the following implements:

IMPLEMENT TYPE	No. in Hoard
Socketed, pegged, spearhead	5
Socketed Knife	1
Socketed Axe	3
? Socketed Chisel	1
Tubular Ferrule	1
Socketed Gouge	1
Socketed Hammer	1
Phalera	2
Total	15

Table VII.1 List of implements in the Eastgate Hoard

Circumstances of Discovery and Subsequent History

The initial record of the hoard appeared as a letter to the Rev. John Hodgson of Jarrow from the Rev. W. Wilson, Rector of Wolsingham, dated 29th February 1816. This correspondence was subsequently published in the first volume of Archaeologia Aeliana (Wilson, 1822, 13-16 and plates I and II).

It seems that the group was discovered around 1812 by a labourer, "under some large rough stones, casually scattered upon the declivity of a mountain and covering nearly an acre of land. The place is at a little distance from the river Wear, on the south side, near a small farm house called Hag-gate: immediately opposite a village on the north side and near the river, called Eastgate" (Wilson , 1822, 13).
After its original publication the hoard figures little in published works and it was not until 1971 that Cowen produced a modern, but generalised, re-appraisal of the material (1971, 29-36). The hoard was known to Evans, who included it (as a possible founders hoard) in his "list of Principal Hoards" (1881, 462, No. 58), referring to it simply as the "Stanhope Hoard". After it was first exhibited to the Society of Antiquaries (Newcastle) in late 1815 or 1816 by Wilson the hoard seems to have disappeared.

The V.C.H. (1905, I, 202) made passing reference to it as did Petch, writing in 1925 (23-24) and Graham (1939, 14) also produces a confused reference to the find. He first documents an "Eastgate Hoard" which he says was found in 1810 and contained,"a sword, gouge, hammer, spearheads, socketed axes and two broken discs" and then goes on to talk about a "Stanhope Hoard" (cf. ref. in Evans above) which consisted of "weapons" and which was found,"in a field near the Wear by a labourer". Over the field were scattered a number of "large rough stones" which he suggested may have been a stone circle. There is no doubt in the present writer's mind that the two hoards to which Graham refers are one and the same.

It was Graham's references to the find which prompted E.J.W. Hildyard into taking an interest in the discovery since, as he says, "my house was surrounded by the fields of that farm" (Hag-gate) (1957, 9). Hildyard mounted an excavation at what he supposed was the findspot, in 1947, a "full report" of which he published 10 years later, omitting unfortunately to include either plans or sections (1957, 9-12). He assigned the findspot to,"a place in the (No. 3201) field between Haggate farm and the Jail Plantation" (NY 955 382) and the aim of his investigation, which he made quite clear, was,"not so much to find any more of the Bronze Hoard that might have been overlooked, as to establish whether there was a Late Bronze Age habitation site at this place" (1957, 11). The end result, however, proved negative. It was also in this year that Hawkes and Smith gave rare mention to the hoard in a paper in the Antiquaries Journal (1957, 155),but eight years were to elapse before Cowen, the then Keeper of the Museum of Antiquities, Newcastle, unearthed any new evidence about the find (Cowen, 1971, 33-34). In April 1967 he visited the house in Cumbria where the hoard is now located and examined it for himself. The present owner of the hoard, a descendant of the Rev. Wilson, is in Cowen's words,"profoundly reluctant to do anything (his italics) in the matter" of the find and it still remains,unconserved, in private hands.

In the course of this research the writer was unable to discover the exact location of the hoard. No address remains in the museum records at Newcastle and,given all the problems with its present location,I feel that I must echo Cowen's sentiments that,"after its astonishing history of survival, the future continuance of the survival of the Eastgate Hoard remains still at risk" (1971, 35-36).

As a result the discussion which follows is based on the original illustrations of the find and Cowen's published description.

(A) Plain, socketed, pegged spearheads (Pl. VII.3).

Plain pegged spearheads of Greenwell and Brewis's Group V are by far the commonest spearhead form of the Later Bronze Age in Britain, but as Ehrenberg (1977, 13) has pointed out there is a great deal of variation within the group. The four complete examples and the fragment from the Eastgate Hoard are fairly typical having the characteristic leaf/lanceolate, shaped blades, circular sockets, and peg holes roughly half way between the socket mouth and the base of the blade. The four complete examples fall well within the overall size range for the type (Ehrenberg, 1977, 13). From available evidence the sockets seem circular and range in diameter from 24 mm to 32 mm. The broken example (Wilson, 1822, plate 1, No. 5) and the cracked example (No. 2) would seem to indicate that the hollow sockets run the full length of the spear blades. Cross-sections of the spear heads are impossible to show with accuracy though from the illustrations all the examples seem to have rounded mid ribs and bevelled blade edges. No socket or blade decoration is visible.

Parallels and Chronology

Plain pegged spearheads were probably re-introduced to Britain in the Penard phase of metalworking (c. 1100 - 900 BC) (Burgess, 1968, 5),after enjoying a brief period of use in the Early Bronze Age. Evidence for this comes from the recently discovered Dover Hoard (Coombs, 1975, 194), the Worth, Devon, Hoard (Tucker, 1867, 210) and the Penard Hoard itself (Crawford and Wheeler, 1921, 138). In general simple pegged spearheads run on through the whole of the Late Bronze Age period (Burgess, 1968, 22). In a northern context, parallels come from the Wallington Complex hoards (c. 1100 - 700 BC) of Denwick (Northumberland) and Kilnhurst (Yorks) (Burgess, 1968, Fig. 7, 4 and Fig. 13, 2). Almost exactly similar spearheads came from the Heathery Burn Cave (Inventaria Archaeologia 1968, GB55, 10(6), 66-69 and further parallels therein). This similarity of style lead Cowen to declare that, "the resemblances between the two groups are too great to admit the idea of any great margin of time between them" (Cowen, 1971, 31).

(B) Socketed Knife (Pl. VII.4, No. 6).

Prior to Cowen's re-appraisal of the hoard, it was always assumed that No. 6 in the engraving of the find was a sword fragment. Cowen however identifies it as a fragment of a socketed knife "of familiar type" (1971, 34).

Parallels and Chronology

Cowen cites the find from Shipley Farm, Dissington (Northumberland) as a parallel, though in the absence of more of the socket this must be disputed. This Dissington example (N.C.H., 1930, xiii, 18-19) is a rare one, having the peg holes for hafting in the same plane as the blade and not, as is usual, at right angles to it. Direct parallels for the piece cannot be found, though again it should be pointed out that the Heathery Burn Cave produced two examples with seemingly similar blade sections (Inventaria Archaeologia, 1968, GB55, 10(7), 92 and 93). Hodges (1956) has discussed the typology of these implements in detail, distinguishing two types. Socketed knives would seem to make their first appearance in the Wilburton/Wallington phase and again run through the Later Bronze Age and into the Iron Age proper (Coles, 1959-60, 46).

(C) ? Socketed Chisel (Pl.VII.4, No. 7).

Implement No. 7 in the engravings of the hoard (Wilson,1822, plate II) was listed by Wilson as a "sharper" for the supposed sword fragment (No. 6).

Cowen interpreted the piece as a socketed axe, "of unusual form" (1971, 31). From the available illustration the piece has a very narrow socket, 21 mm (approximately) and a fairly wide, though asymmetrical, cutting edge (41 mm). It seems to have been hafted by means of pegs (two ? peg holes are visible). Colin Haselgrove has suggested (pers.comm.) that the piece may be some form of adze, but my own feeling is that it is a broad bladed, socketed, chisel. Such an interpretation would fit well with the presence of the socketed gouge (Wilson, 1822, No. 12) and the socketed hammer (No. 13). The piece does not seem sufficiently robust to have functioned as an adze or axe.

Parallels and Chronology

Cowen, believing the implement to be an axe, could find, "no satisfactory parallel for this piece" (1971, 31). However, he does mention an artefact from the Bells Mill Hoard (Edinburgh) as a possibility (Evans, 1881, 136, Fig. 165). This hoard also contained a socketed axe of "Yorkshire" type (Evans, 1881, 164). A further possible similarity may be with a piece from the Carlton Rode (Norfolk) Hoard (Evans, 1881, 133, Fig. 160) though this example is octagonal in section instead of rounded like the Eastgate implement. Both the Bells Mill and Carlton Rode examples lack peg holes.

Two further parallels have been found by the writer in the Husbands Bosworth (Leics.) Hoard (Nichols, 1804, pl. CLI and McK. Clough, 1979, 125-126). The hoard has subsequently disappeared and all that remains is the Nichols' illustration. No. 2 in this illustration, "a broad blade socketed chisel. Length about 70 mm" (McK. Clough, 1979, 126) is exactly the same length as the Eastgate example though the cutting edge is not as broad (approximately 35.5 mm as opposed to 40 mm). It is impossible to say whether the piece had peg holes in its socket. The Eastgate implement could, again, fit into the Wallington/ Heathery Burn Tradition of metalworking (c. 110-700 BC).

(D) Socketed Axes (Pl.VII.4, Nos. 8, 9 and 10).

Three socketed axes, one complete, two fragmentary, all with loops, also occurred in the hoard. No. 8 is of the three ribbed "Yorkshire" type (Fox, 1933, 158; Burgess, 1868 , 39) with a slight moulding around its mouth. Nos. 9 and 10 seem to be plain types. No. 9 has a moulding below the mouth and No. 10 is similar to No. 8 in this respect.

Parallels and Chronology

Parallels for both plain and "Yorkshire" type socketed axes abound in the north. The Heathery Burn Hoard produced at least eleven examples (Inventaria Archaeologia, 1968, GB55, 74-84 and parallels therein) as well as a bronze mould for casting "Yorkshire" type axes and Burgess (1968) discusses many others. The "Yorkshire" type axe is almost entirely a phenomenon of eastern England and Scotland (Megaw and Simpson, 1979, 313) and in terms of chronology, the axes would fit again into a post Wilburton/Wallington, Heathery Burn/Ewart Park phase of metalworking (Burgess, 1968 , 19ff ; Burgess, Coombs and Davies, 1972, 234).

(E) Tubular Ferrule (Pl. VII.4, No. 11)

This tubular ferrule exhibits very slight splaying at its flattened base. From the available evidence it may have been broken at its socket end. The walls seem quite thin.

The ferrule may have served to protect the end of a spear shaft (Cowen, 1971, 31) or any implement which had a long, slender, shaft which could be inserted into the socket.

Parallels and Chronology

Cowen (1971, 31) compared the Eastgate ferrule to one from the Nettleham (Lincs.) Hoard (Evans, 1881, 339, Fig. 423) but this example seems to taper at its base. The tubular ferrule in general would seem to be a "nominally Wilburton" type (Burgess, 1968, 40), occurring in "later contexts" in the north of England. Coles (1959-60, 24) has indicated their possible long life in Scotland, running right through the Later Bronze Age. He lists eight examples, two of which are conical (1959-60, 86).

(F) Socketed Gouge (Pl.VII.4, No. 12)

No. 12 in the engraving of the find is a socketed gouge. The piece has no visible collar or decoration around its mouth (which is 16 mm wide) and its cutting edge appears worn and abraided. The piece seems to have a slight tapering towards its cutting edge.

Parallels and Chronology

Burley (1955-56, 146-148) has distinguished two types of socketed gouge - Type 1 - those without socket mouldings and Type 2 - those with socket mouldings.

The Eastgate example falls into her Type 1 of which she lists six examples in Scotland (1955-56, 148). Among these is one very similar to the Eastgate gouge, dredged from the Tay, and illustrated by Evans (1881, 175, Fig. 208). Coles (1959-60, 87) adds a further two examples to Burley's Type 1 gouges and again the Heathery Burn Hoard produced specimens though all had socket collars (Inventaria Archaeologia, 1968, GB55, 10(7), 85-87). No further northern parallels have been discovered. Coles (1959-60, 51) suggests that both Types 1 and 2 date from the eighth century BC onwards and this would fall in with Burgess's dating of the earliest occurrence of these implement types to the end of the Wilburton phase (1968, , 40). Coombs has indicated that after this time socketed gorges became fairly common (1979, 214). Eogan (1964) has discussed socketed gouges in detail.

(G) Socketed Hammer (Pl.VII.4, No. 13).

The socketed hammer is in a very fragmentary condition. Its hollow casting is evident from the engraving, but nothing of the socket itself remains. The bevelled nature of the working face is clearly visible.

Parallels and Chronology

Given the lack of evidence for socket shape and presence or absence of moulding, it is difficult to find parallels for the hammer. Coles (1959-60, 50) has shown that, as with gouges, two types can be distinguished, "the commoner with moulded and often collared mouth which is dated by many Carps Tongue associations in the south of England (e.g. Reach Fen, Cambs., Inventaria Archaeologia, 1956, GB17) and an earlier form without any decoration at the mouth". In the north of England, the Kilnhurst Hoard, Yorks. (Inventaria Archaeologia, 1958, GB41) has produced two of these simple, socketed hammers which Burgess has suggested may be paralleled as early as the Bishopsland phase (c. 1100 BC) (1968, 19 and 44, note 78). Collared examples, again he would fit into an eighth century and later context (1968, note 79). Cowen (1971, 31) suggested similarities between the Eastgate example and two finds from the Harty Hoard illustrated by Evans (1881, 178, Figs. 211 and 212) but in the absence of the socket a final decision is uncertain.

(H) Phalerae (Pl.VII.4, No. 14)

Two were recorded (Wilson, 1822, plate II, 14). Each is thin and fragmentary, showing four small raised bosses and a central perforation. Wilson (1822, 16) believed these two articles to be fragments of a breast plate, but Cowen has interpreted them as *phalerae*, elements of horse harness decoration.

Technology

The discs were probably cast, though without further examination it may be that they were beaten sheets. Examples in the Heathery Burn Hoard were cast (Inventaria Archaeologia, 1968, GB55, 10(4), 43-49). Phalerae are seen as the prehistoric equivalent of historic and modern "horse brasses". The Heathery Burn examples show evidence for cast loops through which horse harness straps would have passed. These seem to be lacking on the Eastgate examples, but their fragmentary nature may mean that the attachment loops have simply been destroyed.

Parallels and Chronology

British phalerae finds were discussed by Hawkes and Smith (1957, 155) and Cowen (1971, 32, note 6) discusses the Eastgate finds in the light of Merhart's (1956) continental classification. The closest continental analogies to the Eastgate examples are Merhart's Group 2, the four boss group. Burgess (1968, 40) points out that horse trappings are an important part of the Heathery Burn deposit and Hawkes and Smith (1957, 155) liken the Heathery Burn examples to Continental Urnfield types. Again an eighth century or later date would seem applicable to the Eastgate finds, and O'Connor's detailed discussion of parallels and dating of British phalerae finds would seem to bear this out (O'Connor, 1975, 215-226, esp. 224).

The Heathery Burn Cave Hoard (M21)

This hoard, probably one of the most important hoard finds in Britain, was discovered in the period from 1843-1872 during limestone quarrying in the valley of the Stanhope Burn, approximately one mile north of Stanhope. Greenwell gives a detailed account of the discoveries and describes the more spectacular finds (1894, 87-114).

Since its deposition in the British Museum, the hoard has been the subject of detailed study (e.g. Hawkes and Smith, 1957, 148-160; Inventaria Archaeologia, 1968, GB55, 1-10 and detailed references therein; Britton, 1971, 20-38). The metalwork forms are well published and indeed the hoard has been used by some workers as an important chronological and technological marker (Burgess, 1968, *passim*).

As a result, it was not thought necessary to deal with a subject as well worked as the typology of the hoard itself. Little new can be said on the subject and, originally, the planning of this section of this thesis made for only a brief mention of the hoard, pointing the reader to the major references. However, in the course of the research a very interesting development occurred. In 1981 Mr. G. L. Lister of Wolsingham obtained a photograph, a copy of which constitutes Pl. VII.5, purporting to be, as its caption indicates, of "Ancient British Relics", "Found in Cave, Heathery Burn, Stanhope Dene". This photograph is a very strange affair. At first glance it is immediately obvious that not all the objects portrayed are at the same scale, (cf. the leaf shaped sword and the socketed spearhead, Fig. VII.10 Nos. 34 and 40), and some objects are unrecognisable as material recorded by Greenwell in his initial discussion of the find (e.g. Fig. VII.10 Nos. 68, 72, 73 86, 90, 92, 93, 94).

On further examination several other points of interest emerge. As to the nature of the photograph,it is suggested here that what it represents is an archaeological collage. The "finds" would seem to be shapes cut out of paper and mounted on a larger backing sheet. The shapes may have been manufactured by someone who saw some,or all,of the original find,or someone who,at least,had seen illustrations of the material. However, as was pointed out above,the person's grasp of scale leaves a lot to be desired and this point is further borne out when the possible representations of tanged and socketed knives (Fig. VII.10, Nos. 58 and 59) are compared again with the spearheads (Fig. VII.10, Nos. 40 and 50) and the sword (Fig. VII.10, No. 34).

After the shapes had been cut out and mounted, the whole of the collage was probably placed on a board or wall and photographed. The dark circular mark at the bottom left hand corner of the photograph (Pl.VII.5) could well be a drawing pin.

As to what is actually represented in the photograph, a list of tentative identifications accompanies the numbered drawing Fig.VII.10 (taken from the photograph). Some nineteen ? metal pins are shown (Fig.VII.10, Nos. 1, 32, 48, 49, 56, 57, 60, 61, 74-83 and 95). This is more than the total recorded in Greenwell's account, which refers to at least fifteen bronze pins being found, (1894, 101) and is at odds with the surviving total of fourteen (Britton, 1971, 27). Similarly, the ? pieces of wire (Nos. 67-70) are not recorded by Greenwell. He mentions wire only once, in referring to the finding of bronze rings,"placed upon a piece of bronze wire",and since lost (Greenwell, 1894, 91). However, he does also record,"small indeterminate pieces of bronze",in the hoard (1894, 105) all of which are now lost.

One of the most difficult pieces to identify is Fig.VII.10 No. 30. This looks like a dagger or spearhead, however it bears no correlation with any of the dagger or spearhead finds recorded from the hoard. What it could be is a crude representation of the third sword from the hoard which had disappeared when Greenwell wrote his account (Greenwell, 1894, 93 and 97). When Greenwell wrote, one sword, broken in three pieces remained along with the blade section of a second (1894, 97). The third sword, of which Greenwell had seen a tracing, was whole and was,"of the ordinary leaf shaped form, well cast and finished, with a handle plate and holes for rivets to attach the bone or wood which in addition to the plate constituted the handle"(Greenwell, 1894, 97).

Nos. 86, 92 and 93 could not be paralleled with anything in the Greenwell account and No. 13 also caused problems though,after some consideration, it is suggested here that it is a representation of one of the ~~k~~nave bands, seen from above and to one side, showing its inner and outer surfaces.

That some of the pieces have been crudely manufactured and stylised, can be clearly seen in the ? bone pins and implements (Fig.VII.10 Nos. 2, 3, 4, 31, 64, 84); the possible representations of teeth, (Fig.VII.10 Nos. 22-25), (A.F. Harding has suggested in discussion that these may not be teeth but representations of "casting flashes" removed from cast bronze objects), and the ? fragments of jet rings (Fig.VII.10, Nos. 11 and 12).

Overall,the writer would suggest that the "collage" may have been made by children and that it might represent the work of an infant or junior school class whose teacher had seen either illustrations of the hoard or the actual hoard itself. This must, however, remain mere speculation, but it could account for the differences in scale and general crudeness of some pieces represented.

The photograph is of much interest as a unique insight into the local appreciation and understanding of the Heathery Burn find, and as such Mr. Lister is to be congratulated for preserving it.

CHAPTER VIII

PREHISTORIC BURIAL SITES

It has been argued above and elsewhere (Young, 1980), that prehistoric burials have received little attention in County Durham as a whole. Accepted local archaeological doctrine seems to be roughly in line with Greenwell's statement (1877, 440) that Durham was 'wanting' in barrows and other burial evidence. However, it is hoped that the writer's published research on the subject, as well as the information relating to the study area and contained in this chapter, might help to provide an alternative view to that expressed above.

In the archaeological literature a distinction has been made between burials under mounds and 'flat' or 'cist' graves without a covering mound. In what follows, this distinction has been maintained, though the concept is criticised.

FLAT GRAVES

At least twenty-four Beaker/Early Bronze Age 'flat cists' have been found within the old County of Durham to date. The largest concentration, some six sites, occurs around Blaydon (NZ 175 635) on the Tyne and all of the sites recorded have been found either in the course of agricultural work or as the result of industrial or constructional/digging work of some kind. A total of twelve 'flat' graves was recorded from the study area; from the middle Wear at Brandon (no grid reference), (B5); Priory Farm, Finchale (?NZ 296 472), (B60); Sacriston (?NZ 238 477), (B63); Sherburn Grange (no grid reference (B66); Stone Bridge, Durham City (?NZ 260 413), (B71); and Warden Law 'B' (?NZ 372 505), (B75) and from the lower Wear at Fatfield (no grid reference) (B41a, b and c); Fulwell 'B' (NZ 398 595) (B43); Sunderland, Langham Tower (NZ 398 560), (B54); and Tunstall Hills 'B' (?NZ 392 544), (B72) (Fig. VIII.1).

Supposed 'flat' graves are seen by many archaeologists as a specifically northern phenomenon (Atkinson, 1972, 108; Burgess, 1974, 174). Atkinson has suggested that, "a line drawn across England from the mouth of the Tees to the Mersey divides a Southern British province, in which barrow and cairn burial is markedly dominant, from a Northern province in which these raised monuments are in a minority". He supposedly substantiated this statement with figures derived from work by Tait (1965, 65-70), which suggests that 70% of Beakers from Northumberland and Durham came from flat cists and only 30% from barrows or cairns.

However,recent research (Gerrard, 1980; Gerrard and Young in preparation) has shown that Atkinson's figures, as derived from Tait's work,are inaccurate. Gerrard's research, which has examined published evidence for Beaker burials nationally, has challenged the whole concept of the north/south, flat grave/barrow dichotomy, suggesting that the phenomenon should be seen not as a specifically cultural manifestation, but as merely a reflection of differing regional geology and recent land use in the two areas.

In short it is suggested that nearly all the 'flat' graves in the north, where stone lined cists predominate as the burial receptacle, had covering mounds, but that these have been removed allowing the discovery of the cist. In Northumberland and Durham, ploughing is the major process which leads to the discovery of flat graves. Ploughing will lower any mound and it is only when a covering mound has been completely spread that any cist burial set into the underlying ground surface will be encountered by the plough blade. Once this happens the plough operator will stop to examine the obstruction, and another 'flat' grave will be discovered.

In the south of England where dug pits or wood lined graves are common under barrows, no flat graves have been recorded in the course of ploughing (Gerrard and Young in preparation). This, it is suggested, is simply a reflection of the fact that such grave forms present no obstacle to the plough once any covering mound has been lowered.

Indeed, there is no really conclusive proof that any of the so-called flat graves in the study area were not covered with a mound before their discovery. Trechmann deals with the Brandon, Sacriston, Stone Bridge and Fatfield finds, (Trechmann, 1914, 130-132; 134-135; 170-172 and 169-170) and of these there seems little doubt that the Brandon and Fatfield burial deposits had covering mounds. At Fatfield the ground where the burials were found rose, "suddenly for a few feet", and, "this inequality of the ground, which was composed mainly of sand had to be removed to make a road, during which operation the burials were found" (Trechmann, 1914, 169). Similarly, at Brandon a, "thickness of about 2 feet of made soil was observed", above the grave (Trechmann, 1914, 130) and this was removed in the course of quarrying to reveal the cist.

At Sacriston and Stone Bridge the situation is far from clear. Both finds come from areas which of their nature are likely to have been highly disturbed, the former from a modern churchyard and the latter from a market garden. In both cases a covering mound may have been present originally, but given the subsequent land use patterns at the site their chances of survival would have been limited.

The record of the discovery of the Priory Farm, Finchale, Sherburn Grange and Tunstall Hills 'B' burials is too limited to ascertain whether the cists were covered by mounds or not and any barrow or cairn that may have originally covered the Langham Tower and Fulwell 'B' cists is almost certain to have been destroyed by building works as the town of Sunderland expanded earlier this century. Indeed, both burials were found as a result of construction work (Anon. 1905, 78; Bennett Gibbs, 1932, 25).

The Warden Law 'B' site is of some interest because of the history of its discovery. Greenwell recorded the finding of a cist in a natural gravel/mound in Clumps Field to the west of B74, Warden Law 'A' (noted in Trechmann, 1914, 162). He tried on numerous occasions to relocate the cist and failed,as did Trechmann in the course of the latter's excavation of Warden Law 'A' (B74), in 1911 (Trechmann, 1914, 163). In 1979 a cist was found by schoolboys at Warden Law Quarry and excavated by Ford, Miket and Harding (report forthcoming). This burial was covered by a definite barrow and is arguably the same cist as that found by Greenwell.

The Burials and their Associated Finds

Inhumations occur in the Brandon cist (B5) associated with a Developed Northern British Beaker (P3), (Fig.VI.3); at Sacriston accompanied by a Late Northern British Beaker (P5), (Fig. VI.5);in the three cists at Fatfield (B41a, b and c) one of which was associated with a probable Food Vessel, (now lost), (P18) and at Fulwell 'B' with a possible Collared Urn (P31), (now lost).

Cremations are recorded from Stone Bridge (B71), covered by two Collared Urns (P33 and P34) placed one inside the other; Warden Law 'B' (B75) inside a ? Collared Urn (P38) and at Tunstall Hills 'B' inside three urns, two 'cinerary urns' (P13 and P14) and a possible Collared Urn (P35) (all now lost).

Information on burial site and possible artefactual associations is not available for the finds from Priory Farm, Finchale (B60) and Langham Tower, Sunderland (B54).

No artefactual associations,other than the vessels recorded above,came from the supposed 'flat' graves in the study area. These have been discussed in detail in Chapter VI above.

Barrows and Cairns

The following section deals with definite, probable and possible burial sites beneath round and long mounds, and is the result of field, documentary and aerial photograph research. The latter was difficult as ploughed out and extant barrow sites have proved hard to isolate on the available air photograph coverage. Indeed, it was often difficult to pick out a barrow site which is still extant and whose position was known. The R.A.F. vertical photographs are particularly difficult to work with and, largely because of the altitude from which they were taken (usually in excess of 10,000 feet) and the quality of their printing, they are almost useless for purposes of identifying barrows.

In the upper dale there are further complications as the nature of the terrain, particularly on the moorland, does not help in the location of possible barrow and cairn sites. As has already been pointed out (Chapter I, pp.32-34) the area has been very disturbed by quarrying and mining (Fig.I.6) and spoil heaps abound, adding to the confusion caused by heather moor and poorly printed photographs. Indeed, in this area it is only by taking factors such as siting and composition critically into account that a mound can be identified as a possible barrow.

In addition, it must be stated that the lack of a really organised programme of flying in the county has limited the efficacy of aerial photographs as a means of identifying sites of all periods. The most substantial contribution to date is that of Professor D.W. Harding in the period 1965-1977 and, while several others have flown areas piecemeal, this work has tended to concentrate on known sites. A further general limitation is that most flying has been directed at collecting information about 'Iron Age/Romano British' native settlements in the area. As a result, barrows may not have been observed.

It is also worth noting several other points which may be of relevance. The total percentage of land under crops which will produce crop marks may lead to a bias in potential for gathering information in favour of the middle and lower Wear areas.

The presence or absence of ditches at sites is also of significance. If a barrow was ditched, then the fill usually stands out against the natural soil background if the site is ploughed out. If it was not ditched and was built of material scraped up from the surrounding area, then the chances of recognising it, once ploughed, are diminished if not impossible. The burials contained in such a mound would hardly be expected, as Atkinson has observed (1972, 109), to show on an aerial photograph.

Finally it must be pointed out that if destroyed barrows and cairns cannot be picked up from photographs, then the only way that their existence can be known of is if their destruction was recorded. Industrial and settlement expansion has developed so quickly in the middle and lower Wear areas since the eighteenth century that, as has been discussed above (Chapter I, p. 34), the destruction of sites of all periods has probably proceeded at a much faster rate than records would suggest. The number of destroyed sites on the limestone near the mouth of the Wear, in the area now dominated by Sunderland and its environs, should serve as a warning of how many barrows may have been destroyed without record.

Distribution

The distribution of barrows and cairns within the whole county (Young, 1980, 2, Fig. 1) is particularly linked to the major river valleys and 78 definite, probable and possible sites have been recorded throughout the extent of the study area (Fig.VIII.1). The majority of these have been noted in the published inventory of sites (Young, 1980, 5-16), with the exception of two cairns identified on Shittlehope Moor (NZ 006 396 (B67, B68) (Pls.VIII.16c and VIII.17a) to the north east of Crawley Edge (NZ 001 397); a further cairn on Crawley Edge itself (NY 997 403) (B36) (Pl.VIII.10c); a cairn on Bollihope Common, west of the main group of settlement sites recorded there (NY 975 351)(B4) (Pl.VIII.1b) and two ploughed out examples, visible as ring ditches at Low Haugh Croxdale (NZ 271 381) (B55) (Pl.VIII.15c) and Hasting Hill 'B' (NZ 356 536) (B46) (Pl.VIII.12b).

	UPPER DALE		LOWER DALE		MIDDLE WEAR		LOWER WEAR		TOTAL
	Extant	Destroyed	Extant	Destroyed	Extant	Destroyed	Extant	Destroyed	
Definite Burial Site	1	-	-	1	4	3	1	5	15
Probable Burial Site	-	-	-	-	1	3	1	2	7
Possible Burial Site	36	-	-	-	1	5	-	3	45
TOTAL	37			1	6	11	2	10	67

Table VIII.1 Number of recorded, definite and potential, barrow/cairn sites in the study area

Table VIII.1, over, shows the number of sites within each of the sections of the study area.

The middle and lower Wear groupings contain seven and twelve sites respectively which are located on the Magnesian Limestone of the East Durham Plateau. These can be seen as a northern extension of sites occurring down the whole length of the plateau where a total of some 28 sites has been recorded (Young, 1980, 2, Fig. 1). The limestone continues down the western side of the Vale of York, forming the foothills of the Pennine range and the barrows on the East Durham Plateau may represent a continuation up the east side of the country, of barrow sites in Yorkshire. Recent work by Manby lends some support to this (1973, 219-222). The concentration in the upper dale is made up mainly by 30 cairns around Stanhope on Crawley Edge and Shittlehope Moor (B9 - B36 and B67 and B68) which are the first small cairns recorded in the dale, while a further small concentration of possible round barrows occurs in the area of Horsley Hall (NY 965 383) (B39, B49, B50, B51) (Pls.VIII.14a, b and c, VIII.15a). A possible long barrow at Ireshope Burn (NY 871 284) (B53) (Pl.VIII.15b), also occurs in this upland grouping of sites.

Geology

As stated above, all the sites recorded in the lower Wear and seven of the sites in the middle Wear area are located on Magnesium Limestone. The remainder of the middle Wear sites occupy the coal measure rocks, while all the barrows and cairns in the dale occur on Carboniferous Limestone.

Soils

All the sites in the lower Wear area, occur on Brown Earths of high base status. On the medium-heavy textured soils of the middle Wear, all the sites off the limestone occur on low base status Brown Earths, while those on the Plateau occupy surface water Gley soils. In the upper dale the site at Eastgate Station Field (NY 956 386) (B39), is located on alluvial soils, while the three sites on the south of the river, Horsely Burn Farm (NY 973 385) (B49), Horsely Hall A (NY 965 384) (B50) and Horsely Hall B (NY 965 383) (B51), are situated on low base status Brown Earths that have developed on the gravel terrace and boulder clay deposits. The cairns above Stanhope all occupy what is now a humus iron Podsol with a peat/turf cover of well over 30 cms. in places.

Form

Shape

Two major barrow shapes were recorded in the course of the fieldwork:

(a) Long barrows

(b) Round barrows

(a) Two possible long barrows were initially identified, one at Ireshopeburn in the upper dale and the other at Coffee Pot Plantation, Hamsterley in the lower dale (NZ 121 292). The latter however was subjected to trial excavation by the writer and Dr. A.F. Harding in 1979 and found to be a natural feature, while the former has a local tradition attached to it that a 'King' was buried there (Hildyard, 1957, 28-29).

(b) All the extant sites in the valley, with four exceptions, Stockley Beck (NZ 218 376) (B70) (Pl.VIII.17b); Crawley Edge 12 and 21 (NZ 001 397) (B20 (B29) (Pl.VIII.5c and VIII.8c) and Shittlehope Moor 'A' (NZ 005 404) (B67) (Pl.VIII.16c) fall into this category. The mounds of B20, B67 and B70 are oval, B70's shape probably having been modified by ploughing, and B29 is oblong.

Profile

The survey revealed two types of barrow/cairn profile:

(a) Inverted bowl type, with gently curving sides and a dome shaped top and,

(b) Flat topped.

(a) All the extant round barrows and cairns in the study area with the exception of the site at Maidens Bower, Durham City (NZ 264 427) (B56) (Pl.VIII.16a), fall into this category, however, the degree of observed curvature varies a great deal and is probably the result of differential erosion factors and ploughing.

At Eastgate Station field (B39), for example, where the mound is tucked up against the foot of the river terrace, ploughing never seems to have taken place, and the mound is markedly dome shaped. However, at Stockeley (B70) in the middle Wear the mound's profile, while still dome shaped, has been considerably lowered and spread by ploughing. The mound at Horsley Burn Farm (B49) may also have been lowered by agricultural activities and excavation and subsequent ploughing has also almost totally levelled the cairn on Warden Law (NZ 376 502) (B74) (Pl.VIII.19) in the lower Wear. It is now visible only as a very slight rise in the ground level and a patch of grass discolouration.

Indeed, excavation may have influenced barrow profile considerably. Trechmann, for example, initially recorded the barrow on Hasting Hill (NZ 352 543) (B45)(Pl.VIII.12a) as "a typical round example of the low flat variety which is generally found to be prolific in remains as indeed it proved to be. It's diameter is about 40 feet and height about 2 feet nine inches in the centre and about 3 feet near the circumference being thus slightly bowl shaped, though whether this was an original feature of the mound or was due to subsequent disturbance I was not able to ascertain" (1914, 136). He even produced a section drawing to give more weight to this verbal description (Trechmann, 1914, 136, Fig. 10). However, at the present time, although an O.S. trig. pillar has been placed on the barrow, the mound has a definite inverted bowl appearance. Thus the mound may have been totally reconstructed after the excavation.

(b) Flat Topped

Only one example was recorded in the Wear Valley, that from Maidens Bower (B56) in Flass Vale, Durham City, which may have been flattened off as a result of historically documented activity at the site. The mound was used as a 'sacred' place in 1346 when, during the battle of Nevilles Cross, the monks from Durham erected the 'pallium of St. Cuthbert' on the site. After the battle a wooden cross (which stood until 1567) was erected there (Surtees, 1840, IV, Pt. 2, 134; V.C.H., 1905, I, 363). The levelling of the mound could have taken place as a result of either of these events.

Composition and Structure

As is to be expected, barrow composition is largely conditioned by local geology and falls into two basic categories: earthen and cairn material. Many of the conclusions arrived at in this section on composition are the result of surface observations made at each site. However, the limited documentation concerning the excavation or destruction of barrows in the area does provide some clearer information.

Earthen

Following criteria laid down by Ashbee (1960, 44) this term has been taken to include soil, turf, sand and gravel and the majority of mounds identified can be grouped under this term.

The raw material for earthen barrows is normally obtained from two main sources: (a) quarry ditches surrounding the area covered by the mound or (b) from turf and topsoil stripping in the general area. The only extant mound in the study area with any evidence for a surrounding bank and ditch is at Stockley (B70), though here the ditch may be a later feature related to tree planting at the site. Even if it was contemporary with the mound it is not thought that it could have provided all the material required for its construction. It may only have been dug to provide a counter-scarp bank, but this is a point which only excavation will clarify. Further aerial photographic evidence for ditched barrows in the study area has been outlined above (p.243).

On surface indications then it seems that the majority of extant earthen sites in the valley are ditchless, bowl shaped, barrows and that in most cases, the material for their construction was gathered together as a result of turf and topsoil stripping. It must be borne in mind though that the denudation of the mound may obscure the presence of a ditch and that excavation, or geophysical survey, may be the only ways to prove conclusively whether a mound is ditched or not.

At Maidens Bower (B56) the material for the site's construction (which seems to be sandy earth) probably came from the levelling of the top of the natural hillock on which it stands, while the three sites on the river terrace in the upper dale may have been built from material quarried from the terrace side. The Eastgate Station field barrow (B39) contains water-worn pebbles probably from the bed of the Wear.

Cairn material

Forty possible cairns have been recorded as a result of the field work and documentary survey. Thirty-two of these are in the upper dale; twenty-eight on Crawley Edge (B9 - B36); two on Shittlehope Moor (B67 and B68); one at Rantherley Hill (NY 950 378) (B61)(Pl.VIII.16b) and one on Bollihope Common (B4). The destroyed sites at Newfield (B59) and Whitworth Hall (B75) are in the middle Wear while the remaining six are in the lower Wear at Copt Hill (NZ 353 492) (B8)(Pl.VIII.1c); Warden Law 'A' (B74), Fairies Cradle (?NZ 353 477) (B40) (now destroyed); Tunstall Hills 'A' (NZ 391 544) (B72) (Pl.VIII.18b) and High Elstob Farm 'A' and 'B' (no grid reference) (B47),(B48) (now destroyed).

At Rantherley Hill (B61) the material may have been obtained from the hillside behind the site, where the Carboniferous Limestone outcrops, and Tunstall Hills 'A' might also have been built either from outcropping Magnesian Limestone or from eroded material collected from below the rock outcrop. Special consideration has been given to the origin of the material used to construct the cairns on Crawley Edge, Copt Hill and Warden Law and the destroyed cairns at Newfield, Whitworth, and Fairies Cradle (see below, Chapter X, pp.358-360).

Structure

Within the county as a whole, little is known of barrow structure; no published excavations, prior to the writer's work at Stanhope in 1976 - 1977, had been carried out since Trechmann's work in 1911 - 1912. As a result most of our knowledge comes from late nineteenth and early twentieth century research.

Possibly the most interesting site in the county is the barrow at Copt Hill (B8) in the lower Wear. The mound was comprised,"chiefly of magnesian limestone with pieces of sandstone intermixed. Some soil probably the remains of turf also occurred together with pieces of burnt limestone. The stone on the surface was small for a depth of about one and a half feet and then became much larger without much admixture of earth. Some large limestone flags above two feet long and one and a half feet wide together with large sandstone boulders also occurred" (Trechmann, 1914, 124).

Several Bronze Age burials were encountered throughout the mound, but the one which attracted most attention was the 'primary interment' situated 5 feet (1.52 m) south of the centre of the mound (Trechmann, 1914, 126). The eastern side of the cairn consisted of burnt limestone beneath which, on the old land surface,was a deposit of charcoal 6 feet (1.82 m) wide and 34 feet (10.46 m) long,orientated in an east west direction. Within this charcoal was mixed the 'primary interment' of several cremated, disarticulated,bodies, their condition suggesting that they had been stored elsewhere before burial (Trechmann, 1914, 126). "Behind the combustible material there occurred, surrounding and supporting it,an incombustible structure in the form of whinstone and sandstone boulders", these were affected by burning on their inner edges only (Trechmann, 1914, 125). 'Flues' were found,"rising from the charcoal",through the limestone, "having formerly connected with the surface of the mound to create a draught so that all the bones were burnt" (Trechmann, 1914, 126-7).

These two holes were both 'oblong' (Fig. VIII.6) and rectangular in section. The eastern one, which measured 3 feet 3 inches (1 m) x 1 foot 5 inches (0.43 m) x 1 foot 6 inches (0.45 m) deep was 'lined out' with stones, with much charcoal at the bottom and filled with 'burnt earth'. The western hole measured 3 feet (0.91 m) x 1 foot 8 inches (0.53 m) x 1 foot 10 inches (0.58 m) deep and was filled with charcoal and covered with limestone (Trechmann, 1914, 127).

Trechmann believed that this deposit was a Neolithic 'flue' cremation and cited the Willerby Wold and Rudstone long barrows in Yorkshire and the Crosby Garrett long barrow in Cumbria,as parallels (Trechmann, 1914, 126). Indeed, he expressed the possibility (with which the writer disagrees) that the Copt Hill barrow may have been a long barrow whose shape had been altered by later interments (Trechmann, 1914, 124).

Grinsell also held that the site was a 'flue cremation' (1953, 249) and Manby (1970, 15) also believed this. However, the writer is of the opinion that the feature may have been the burnt and collapsed remains of an axial mortuary structure, resembling a low ridge tent. Argument about these phenomena has raged in the past (Simpson, 1968a, Ashbee, 1969) and Manby has proposed that the burning of a wooden mortuary house,such as the one postulated at Waylands Smithy (Atkinson, 1965, 130),would not have produced the temperatures which seem to have been achieved at Willerby Wold (1970, 20). However, the filling of the two holes at Copt Hill, especially the eastern one where the stone lining may have been packing, suggests that they may have been large post holes which could have supported a morticed ridge pole. Their similarity in size adds some weight to this. The roof of the structure may have consisted of close set timbers, resting with their lower, outer, ends on the ground. The limestone and boulders which surrounded the 'mesial' deposit may have supported the bottoms of the pitched timbers or more likely delimited the area which they covered.

It may be that the smaller stones behind the larger surrounding boulders represent some of the covering of the pitched timbers which fell when the timbers themselves were burned. Fig. VIII.8a shows a sketch section through the mound, drawn at the time of the excavation (Greenwell, M.S. notes in the British Museum) and the central area of burnt limestone may represent the burnt remains of this covering.

Similar structures are recorded in detail from many long barrow sites, e.g. Fussell's Lodge (Ashbee, 1970, 51-52, Fig. 34) and Wayland's Smithy (phase 1) (Atkinson, 1965, 130), where a similar setting of boulders surrounding the burials was found. Other round barrow sites which have similar 'Neolithic' structural affinities are Pitnacree (Coles and Simpson, 1965, 39, Fig. 3); Cowlam, Willie Howe Plantation (Mortimer, 1905, 340, No. 277); Garton Slack (Mortimer, 1905, 246, No. C34), Garton Slack (Mortimer, 1905, 235 and 238, Nos. 80 and 81); Helperthorpe (Greenwell, 1877, 205-208, No. XLIX); Heslerton (Greenwell, 1877, 142-145, No. VI) and Huggate Wold (Mortimer, 1905, 300 and 320, Nos. 224 and 254).

Other anomalous features in the barrow's structure are visible in Fig.VIII.8b. There is no scale in this drawing and it is uncertain whether it represents a plan or a section, but if it is the former then the setting may be similar to the compartmentalisation visible at sites like the chambered tomb of Ascott-under-Wychwood (Selkirk, 1971) and the earthen long barrows at Skendleby, Site I (Philips, 1936) and Site II (D.D.A. Simpson, pers. comm.), and South

Street and Beckhampton Road (Ashbee, Smith and Evans, 1979, 228-300, esp. 235, Fig. 14 and 256, Fig. 25). However, the information is very vague and any inferences drawn from it should be treated with the utmost caution.

Two sites in the study area, outside of the Crawley Edge cairnfield, show evidence of surrounding kerbs, Horsely Hill 'A' (B50) in the upper dale and Warden Law 'A' (B74) in the lower Wear (Trechmann, 1914, 162-167). More detailed information on the structure of the cairns on Crawley Edge is available as a result of the writer's field-work and excavation in the area. This will be discussed below in the section dealing specifically with the cairnfield.

Siting

Three siting categories were observed in the course of the writer's published research on barrows and cairns in the county (Young, 1980, 2). These have been retained here and are as follows:

(1) Valley barrows.

(2) Hill barrows and cairns sited to overlook the river valley.

(3) Hill barrows and cairns sited to overlook surrounding lower land.

Category 1

In the study area, six extant barrows, the possible long barrow at Ireshopeburn (B53); Eastgate Station Field (B39); Horsley Burn Farm (B49); Horsley Hall 'A' and 'B' (B50, (B51) and Maiden's Bower (B56), have been placed in this category.

B53, B49, B50 and B51 are all sited on river terrace deposits (Figs.VIII.27, VIII.25, VIII.26), usually on the very edges of these features. This may have been an attempt to conserve land in the dale and contrasts markedly with other terrace sited mounds in the county (Young, 1980, 2 and 9 and 14, No.s 34 and 98). B39 however, in Eastgate Station Field,is located on the floor of the valley, directly against the foot of the river terrace. The valley floor at this point is fairly wide and the mound is set well back from the river (Fig.VIII.20).

The Maiden's Bower site is situated on top of a natural, spur like, hillock which projects out from the valley side and which allows the mound to be seen from most parts of the Flass Vale. A similar situation can be observed at Swinkley Knoll in Teesdale (NY 983 242) (Young, 1980, 7, No. 24). Further parallels for this kind of siting come from the Lune Valley in Cumbria at Eller Beck Burrow and Druids Circle at Casterton (Lowndes, 1963, 84-85).

Category 2

This category contains three extant sites, Stockley Beck (B70), Copt Hill (B8) and Rantherley Hill (B61) as well as the majority of cairns on Crawley Edge and the two on Shittlehope Moor (B67), (B68). The Crawley Edge cairns will be discussed in detail below.

The sites at Copt Hill and Rantherley Hill (if it is indeed a cairn) are situated just below the crest lines of the hills or slopes on which they stand (Figs. VIII.7 and VIII.29). This 'false crest' siting means that when they are viewed from the lower land below, they stand out prominently against the sky. The two cairns on Shittlehope Moor have been sited to overlook Crawley Edge and the valley of the Shittlehope Burn.

Category 3

This siting category is entirely confined to the sites in the middle and lower Wear areas, located on the East Durham Plateau, with its limestone and glacial knolls. It includes three extant sites in the middle Wear, Batter Law (B2) and East Murton, Murton Moor 'A' and 'B' (B37, (B38) as well as three sites in the lower Wear at Hasting Hill 'A' (B45), Warden Law 'A' (B74) and Tunstall Hills 'A' (B72). On the basis of available documentary and air photographic evidence the destroyed sites at Fairies Cradle (B40), Humbledon Hill (B52), Grindon Hill (B44), Steeple Hill (B69) and Hasting Hill 'B' (B46) may also have been similarly sited.

The extant sites have all been placed on the highest points in the area, the tops of the small hills of the plateau, making them conspicuous features from all directions. (Figs. VIII.4, VIII.19, VIII.22, VIII.31 and VIII.32). The implications of this are discussed in Chapter X below.

Siting in relation to other barrows and cairns

An examination of the available data from the whole county indicates a tendency for two or more barrows to be sited near each other, or situated so that each could be seen from the other.

In the upper dale the two possible sites in Horsely Hall Park, B50 and B51 are situated approximately 30 m apart on the river terrace and B50 and the site at Horsely Burn Farm (B49), seem to have been located so that each would have been visible from the other (Pl.VIII.14b). Also in the upper dale the cairn on Rantherley Hill (B61) can be clearly seen from B39 in Eastgate Station Field,in the valley below.

Other paired barrows occur at East Murton, Murton Moor 'A' and 'B' (B37 (B38) in the middle Wear,where the mounds are only 70 m apart and pairing may also have occurred at High Elstons Farm 'A' and 'B' (B47) (B48) (now destroyed) and Hasting Hill 'A' and 'B' (B45) (B46),in the lower Wear. The writer has also documented further paired barrows in his published survey (Young, 1980, 6, Nos. 12 and 13 and Nos. 15 and 16).

The interpretation of this phenomenon presents several problems, for example, are the sites contemporaneous, are they merely the remnants of larger groups now destroyed? Only excavation, radio-carbon dating and geophysical survey will help to solve these problems, though it is worth noting that a similar pairing of sites has been recorded in north east Yorkshire and a similar phenomenon would seem to occur with some megalithic tombs and ring cairns (Lynch, 1972, 66).

The phenomenon of intervisibility between barrows and cairns has already been noted in the upper dale and in the lower Wear, on the limestone, a similar situation prevails between several sites. B37 and B38 (Murton Moor 'A' and 'B') are visible from the site on Batter Law (B2) (Fig. VIII.4) and this site is in turn visible from B74, the cairn on Warden Law (Fig.VIII.32). Similarly Hasting Hill 'A' (B45) is visible from Tunstall Hill Site 'A' (B72), (Fig.VIII.22). A fuller consideration of this phenomenon and its bearing on the nature of the contemporary forest cover can be found in Chapter X.

Siting and altitude

In Fig. VIII.2 the altitudes of extant sites within the whole county have been plotted and the altitudinal range of the Wear Valley sites has been clearly indicated. With the exception of Tunstall Hills 'A' (B72) in the lower Wear, the concentration of sites between 200 feet and 400 feet OD (61.5 m - 123 m approx.) represents barrows from the central area of the county. The sites of Maidens Bower (B56) and Stockley Beck (B70) in the middle Wear are also represented in this group.

The grouping of sites between 400 feet and 500 feet OD (123 m - 153 m approx.) is made up entirely of sites on the East Durham Plateau including B45, B8, and B72 in the lower Wear and B2, B37 and B38 in the middle Wear. Sites occurring between 600 feet and 700 feet OD (184 m - 215 m approx.) are located in the foothills of the Pennine uplands in the transitional area between 'highland' and 'lowland'. Several reasons can be suggested for the lack of sites in the Wear Valley between 500 feet and 700 feet (153 m - 215 m approx.) For example, sites may well exist but have simply not been found. Destruction may be more widespread in this altitudinal range, with the presence of the exposed coalfield and the ensuing methods of winning coal, or it may be the case that the lacuna is genuine.

The small cluster of sites between 700 feet and 800 feet OD (215 m - 246 m approx.) is the group of sites on the terraces of the upper dale, all around 750 feet OD (230 m approx.). The fall off in the occurrence of sites between 800 feet and 1000 feet OD (246 m - 307 m approx.) may be simply due to the steep nature of the valley slopes at these heights, a point graphically illustrated in the upper dale where land around 800 feet OD (246 m approx.) represents the river terraces and lower valley slopes and land above 1000 feet (307 m approx.) represents the benches and spurs of land overlooking the river. The group between 1000 feet and 1200 feet OD (307 m - 369 m approx.) includes all the cairns on Crawley Edge, (B9 - B36), Shittlehope Moor (B67), (B68), and Bollihope Common (B4) as well as the site at Rantherley Hill (B61).

The Burials and their Associations

Table VIII.2 below shows information on burials and associated finds from thirteen sites in the study area which have either been excavated or destroyed with some kind of record having been kept at the time of destruction. In all, forty-two burials are recorded in addition to the disarticulated burials from Copt Hill (B8) which formed the primary burial at the site. Information on burial form was not available for two sites, B3 and B40, both now destroyed. 64% of the burials (27 examples) are inhumations and 36% (15 examples) are cremations. As Table VIII.2, below, shows, these break down into several categories.

Apart from pottery vessels, dealt with in detail in Chapter VI above, the most common association with burials of all classes are flint implements, flakes and cores which occur with six inhumation burials and two cremations. Animal remains are recorded with two of the inhumations and one cremation.

Table VIII.3 also shows in detail the relationship between pottery types, burial form and site and other major artefact types found in the graves. Detailed descriptions of all the artefacts can be found in the relevant sections of the Inventory.

Inhumations	No.	% of Total Inhumations	Cremations	No.	% of total Cremations
Contracted in cist	9	33.3	In cist, no covering urn	4	26.6
Contracted, no burial receptacle	7	25.9	In cist, covering urn	1	6.6
Contracted in pit	1	3.7	Covering urn, no cist	1	6.6
Extended in cist	1	3.7	No cist, no covering urn	4	26.6
Extended no cist	9	33.3	In pit, no covering urn	1	6.6
			In upright urn, no cist or pit	3	20.0
			In upright urn in cist	1	6.6
Total	27	99.9		15	99.6

Table VIII.2 Categories of burial form recorded from barrows and cairns in the study area

Site Name	Grid Ref.	Inv. No.	Nature of Burial	Associated Finds	Present Location	References
Batter Law	NZ 406 459	B2	Crouched inhumation in cist	Plano convex flint knife (Fig. VIII.5)	Sunderland Museum	Trechmann, 1914, 158-160
Boldon	?NZ 347 604	B3	Barrow destroyed - no data.	Fragmentary Food Vessel Urn (P12) and Food Vessel (P29)	Sunderland Museum	Anon. 1897-8, 206; Preston, 1933, 109.
Copt Hill	NZ 353 492	B8	(i) Primary burial - disarticulated skeletons in a collapsed and burnt mortuary structure (see section on Barrow Structure)	No artefactual associations recorded	-	Trechmann, 1914, 123-132; B.M. Greenwell m. 8 No. 3.
			(ii) Burnt bone scattered over area 2½ feet in diameter.	Calcined flint	Finds now lost	Trechmann, 1914, 128. No. 7.
			(iii) Small cist,	No associated finds.	-	Trechmann, 1914, 128, No. 2.
			(iv) Inhumation without cist	Flint scraper, (F75) (Fig.VIII.9)	British Museum	Trechmann, 1914, 128, No. 3.

Table VIII.3 Recorded artefactual and other associations with burials in the study area

Site Name	Grid Ref.	Inv. No.	Nature of Burial	Associated Finds	Present Location	References
			(v) Inhumation, no cist.	-	-	Trechmann, 1914, 128, No. 4.
			(vi) Inhumation no cist.	Food Vessel (P17)	Now lost	Trechmann, 1914, 128, No. 5.
			(vii) Cremation	-	-	Trechmann, 1914, 128, No. 5.
			(viii) Cremation	-	-	Trechmann, 1914, 128, No. 5.
			(ix) Cremation covered by Urn	Food Vessel Urn (P8), (Fig.VI.7)	British Museum 90. 11-11.1.	Trechmann, 1914, 129-130, No. 6.
			(x) Inhumation in long cist on summit of barrow.	-	-	Trechmann, 1914, 130, No. 7.
				A plano convex flint knife, scraper and nine waste flakes in addition to a shale fragment and two pieces of bone, are also preserved from the barrow (F75), (Fig. VIII.9).		

Table VIII.3 Cont.

Site Name	Grid Ref.	Inv. No.	Nature of Burial	Associated Finds	Present Location	References
East Murton 'A'	NZ 381 460	B37	Cremation in a pit, no cist recorded.	Flint knife, burnt scraper and two flakes/chips.	Now lost	Trechmann, 1914, 167.
Fairies Cradle Hetton	?NZ 353 477	B40	No information available.	'Vessel of pottery' found when site destroyed.	Now lost	Surtees, 1816, I, Pt. ii, 214.
Fulwell 'A'	-	B42	Inhumation in cist.	Two supposed 'Roman coins' found on S. side of burial near right hand	Now lost	Collinson, 1763, 492. Hutchinson, 1794, II, 507. Surtees, 1820, II, 12-13.
Grindon Hill	-	B44	Nine inhumations (extended), no cists recorded.	No finds recorded.	Now lost	Robinson, 1905-1906, 19
Hasting Hill 'A'	NZ 352 543	B45	(i) Cremation in cist.	(i) Food Vessel (P19)	Now lost	Trechmann, 1914, 139. Find I.
				(ii) Flint core, flake, and an implement with secondary chipping mixed with bones.	Now lost	Trechmann, 1914, 139. Find I.
			(ii) Cremation in urn - no cist.	'Cinerary Urn' (P13)	Now lost	Trechmann, 1914, 146, Find II.

Table VIII.3 Cont.

Site Name	Grid. Ref.	Inv. No.	Nature of Burial	Associated Finds	Present Location	References
			(iii) Cremation - no cist.	-	-	Trechmann, 1914, 141, Find III.
			(iv) Cremation in circular cist.	(i) Fragment of Food Vessel (P21)	Now lost	Trechmann, 1914, 143, Find V.
				(ii) Unburnt sheeps tooth.	Now lost	Trechmann, 1914, 143, Find V.
			(v) Cremation covered by urn in cist.	(i) Food Vessel Urn (P9) (Fig.VI.8) (Pl.VI.5).	Sunderland Museum	Trechmann, 1914, 143-145, Find VI.
			(vi) Cremation in cist	-	-	Trechmann, 1914, 146, Find VIII.
			(vii) Contracted inhumation in cist.	(i) Northern British/North Rhine Beaker (P4) (Fig.VI.4) (Pl.VI.3)	Sunderland Museum	Trechmann, 1914, 146-150, Fig. 15 & Fig. 16, Find IX.
				(ii) Flint knife, (Fig.VIII.24).	Sunderland Museum	

Table VIII.3 Cont.

Site Name	Grid Ref.	Inv. No.	Nature of Burial	Associated Finds	Present Location	References
				(iii) Bone pin (Fig. VIII.24).	Sunderland Museum	
				(iv) Four or five periwinkle shells.	Now lost	
				(v) Fish remains	Now lost	
				(vi) Bird bones	Now lost	
				(vii) Mammalian bones (burnt)	Now lost	
				(viii) End of a of a stag's antler	Sunderland Museum	
			(viii) Inhumation in disturbed oblong cist.	(i) Food Vessel (P22)	Now lost	Trechmann, 1914, 150-151, Fig. 16.5, Find X.
				(ii) Flint saw	Now lost	
				(iii) Waste flake	Now lost	

Table VIII.3 Cont.

Site Name	Grid Ref.	Inv. No.	Nature of Burial	Associated Finds	Present Location	References
			(ix) Contracted inhumation in shallow grave scooped into tomb-stone surrounded by small lime-stone boulders.	-	-	Trechmann, 1914, 151-153, Fig. 17. Find XI.
			(x) Inhumation in cist.	(i) Food Vessel (P24) (Fig. (Pl.VI.10).	Sunderland Museum	Trechmann, 1914, 153-155, Fig. 18, Find XII.
				(ii) Irregular flint splinter.	Now lost	
				(iii) Burnt ox tooth.	Now lost	
				Also found within the mound were:		
				(i) Food Vessel (P20), (Fig.VI.11) (Pl.VI.8).	Sunderland Museum	Trechmann, 1914, 141-142, Fig. 11, Find III.
				(ii) An antler pick (Fig.VIII.24) (Pl.VIII.13).	Sunderland Museum	Trechmann, 1914, 145, Fig. 14. Find VII.
				(iii) Rim fragment of a food vessel (P24) (Fig.VI.14) (Pl.VI.10).	Sunderland Museum	Trechmann, 1914, 153.

Table VIII.3 Cont.

Site Name	Grid Ref.	Inv. No.	Nature of Burial	Associated Finds	Present Location	References
				(iv) Fragments of ? Neolithic bowl (P1), (Fig.VI.2) (Pl.VI.1).	Sunderland Museum	Trechmann, 1914, 155.
				(v) Base of ? Food Vessel with foot-ring (P25) (Fig. VI.14), (Pl.VI.4).	Sunderland Museum	Trechmann, 1914, 156.
				(vi) Rim fragment of Neolithic bowl (P2) (Fig.VI.2) (Pl.VI.2)	Sunderland Museum	Trechmann, 1914, 156.
				Flint and fragments of bone occurred throughout the mound.	Now lost	Trechmann, 1914, 156.
Humbleton Hill	?NZ 380 552	B52	Two inhumations and two cremations in urns.	Two food vessel urns (P10 and P11) (Figs. VI.9 and VI.10) (Pls. VI.6 and VI.7). A third vessel, now lost was also recorded.	Sunderland Museum	Greenwell, 1877, 440. Trechmann, 1914, 120-121, Figs. 1 and 2. V.C.H. 1905, I, 208. Fox, 1927, 115-133.

Table VIII.3 Cont.

Site Name	Grid Ref.	Inv. No.	Nature of Burial	Associated Finds	Present Location	References
Rowley	?NZ 176 427	B62	? Cremation inside an 'arched brick structure'	No finds recorded	-	MacLaughlin, 1854, 10-12.
Satley	-	B64	Possible inhumation in cist.	'Earthen Pot'	Now lost	Fawcett, 1939, 225-226.
Steeple Hill	NZ 383 529	B69	Double inhumation in cist with possible cremation in one of the accompanying vessels.	Two food vessels.	Now lost	Greenwell, 1877, 441. VCH, 1905, I, 208.
Warden Law	NZ 376 502	B74	Two disturbed inhumations, ? not in cists.	(i) group of flints (F113) (Fig.VIII.33) (Pl.VIII.20) from the barrow mound	Sunderland Museum	Trechmann, 1914, 162-167, Fig. 22.
				(ii) Two flint cores found in close proximity to the (F) human bones.	Now lost	
				(iii) One fragment of undecorated pottery in barrow soil (P28).	Now lost	

Table VIII.3 Cont.

Site Name	Grid Ref.	Inv. No.	Nature of Burial	Associated Finds	Present Location	References
				(iv) Several flakes, cores and chippings plus a fragment of the cutting edge of a greenstone axe, from old land surface.	Now lost.	

Table VIII.3 Cont.

The Crawley Edge Cairnfield, Stanhope (NZ 001 397) (Fig.VIII.10, VIII.11)

The following is a discussion of the twenty-seven cairns located approximately 0.80 km north of Stanhope, at an altitude of around 1050 feet OD (330 m approx.) on the well drained top and gently sloping south/south-east face of Crawley Edge, a broad spur of land lying between the Stanhope Burn to the west and the Shittlehope Burn to the east, on the north side of the Wear (Fig. VIII.11).

The Cairns

Three types are visible at the site:

(a) Oblong: one example, No. 21 (B29), orientated roughly N-S, was recorded.

(b) Oval: one example, No. 12 (B20) was recorded. Both B20 and B29 are omitted from Fig. VIII.2.

(c) Round

The remaining twenty-five cairns in the main grouping so far identified on Crawley Edge are round in shape. They show varying degrees of disturbance ranging from almost complete destruction in the case of No. 3 and No. 19 (B11, (B27), to slight disturbance as in the case of No. 1 (B9) before excavation.

As the histogram of cairn diameters, (Fig. VIII.12), shows the cairns range from 1.80 m to 8.5 m in diameter with the majority lying between 3 m and 7 m in three definite groupings:

(a) between 3 m and 4 m.

(b) around 5 m.

(c) either side of 6 m.

However it should be borne in mind that peat and turf growth over and around the cairns may obscure their true dimensions.

In height the mounds range from just above ground level to around 1 m. On Fig. VIII.12, diameters and heights have been plotted together and as might be expected height tends to increase with diameter.

On surface indications seven of the cairns show traces of a surrounding kerb of stones which are larger than those which make up the main body of the cairns (Nos. 1, 2, 4, 5, 9, 11 and 17) (B9, B10, B12, B13, B17, B19 and B25).

From the site plan (Fig. VIII.10), it can be seen that the cairns cluster into five loosely defined groups:

Group 1 is situated just below the crest of the spur on its south facing spurs and includes B9, B10, B14, B15, B16 and B17. The group clusters around the large cairn, No. 1, (B9) (Fig.VIII.10), (Pl.VIII.4b), and cairns 1 and 2 (B9, (B10) are both false crest sited. The group includes three of the kerbed cairns noted above.

Group 2 consists of only two cairns, Nos. 3 and 4 (B17) (B12), located in isolation to the north-east of the major grouping, overlooking the valley of the Shittlehope Burn. B12 shows evidence of a surrounding kerb. Cairn No. 3 (B11) which is disturbed, may well have produced the battle axe provenanced to Rogerwell Hush and now in the Bowes Museum SI 36 (Accession No. 1958 1794).

Group 3 occurs to the east of Group 1 but, unlike it, no one cairn stands out as being significant. The group occupies the top of the spur and consists of cairns 5, 10, 11, 12, 18, 19, 20, 21 and 22, (B13, B18, B19, B20, B26, B27, B28, B29 and B30).

Group 4 lies to the south of Group 3, occupying the south facing slope of the spur. It consists of Nos. 17, 23, 24, 26 and 27 (B25, B31, B33, B34 and B35) and again no one cairn stands out as being significant.

Group 5 is situated to the south of Group 1 and consists of cairns No. 13, 14, 15, 16 and 25 (B21, B22, B23, B24 and B33).

Cairn Structure

Detailed evidence of cairn structure at Crawley Edge is provided by the excavations carried out by the writer and A. T. Welfare in 1976-77.

Two interim statements have been published (Young and Welfare, 1977, 1978) and at time of writing a detailed report on this excavation merely awaits specialists reports before publication. However, in the context of the present discussion a statement on the results of the work is essential.

Cairn No. 1 and Cairn No. 6, (B9) (B14) were chosen for excavation.

Cairn No. 1 (B9)

The body of the cairn consisted of small to medium sized angular pieces of Carboniferous Limestone and some rounded pebbles. Removal of this material revealed a basal layer of large slabs and boulders set on end and in the natural subsoil and within this overall spread several features could be identified (Fig. VIII.13).

Laid down at the same time as the basal layer or possibly slightly earlier was a curvilinear setting of thirty mixed angular, rounded and slab like stones, orientated roughly NE/SW (Feature 1, Fig.VIII.14). The large stones of the basal layer ran up to this feature and some were found inside it. However, they did not overly it. As the plan shows, feature 1 can in no sense be described as retaining the cairn material; the smaller stones of the covering mound overlay it and stones of the basal layer occur outside of it.

Care in the features construction was only in evidence on its north side where seven angular stones with very flat inner faces had been placed very closely together. On the north east side and offset slightly to the east was a large upright slab of Carboniferous Limestone which appeared to be blocking a definite gap in the perimeter of Feature 1. This slab was embedded in the natural ground surface and several small packing stones were found around its base.

The stones in Feature 1 ranged from 10 cms to 36 cms in height above the subsoil. In the two sections where the stones used were small, the lack of height was compensated for by the use of superimposed slabs (Pl.VIII.2c). H. Welfare (pers.comm.) has suggested that this may have been rough dry stone walling though the writer believes that this interpretation can be disregarded due to the insubstantial nature of the superimposition.

Abutting Feature 1 on its south face were three upright slabs (Feature 2, Fig.VII.14), very similar to the side slabs of a cist, standing to a height of 80 cms in the natural subsoil. No discernible pits had been dug for them. Running away to the east, from the base of the largest slab in Feature 2 was another arc of stones abutting with the upright slab on the north-east side of Feature 1 (Fig.VIII.14).

Within Feature 2 and abutting the south side of Feature 1 was a deposit of stone and earth which was found to contain the broken lower stone of a saddle mill (Fig.VIII.16). Stratigraphically this deposit must be later than Feature 1 and was itself bounded by several small, upright stones (Fig.VIII.14). The stone in the upper layer of this deposit overlay a sandy, brown soil (Fig.VIII.15 Layer a) which in turn overlay a fine, yellow/brown soil with grey mottled patches and much charcoal (layer b). This layer produced the charcoal for one of the C14 dates referred to below, as well as several fragments of bone and three fusiform jet beads (Fig.VIII.17). Layer b in turn sealed a greyer soil deposit (layer c) which was directly above the natural mineral soil. Iron pan had formed between layers a and b and intermittent patches of iron pan were visible within layer b.

A further, small, soil deposit occurs within Feature 1, abutting the same slabs as layers a-c in the following sequence (Fig.VIII.15). Layer d, a black and sandy mineralised soil, overlay a brown, sandy soil (layer e) similar to layer a in texture. Beneath this was the natural surface of the sub soil. The section drawing (Fig.VIII.15) indicates that both of these deposits is earlier than the basal layer of the cairn, and later than the construction of Feature 1.

Beneath the basal layer, within Feature 1, was a rectangular pit (Feature 3) located slightly off centre and towards the broader end of Feature 1 (Fig.VIII.14). This had been dug through the mineral soil surface into the yellow/brown natural clay beneath the cairn and it was covered by a very inconspicuous limestone slab which had first appeared as an integral part of the basal layer of the cairn.

Placed centrally within the pit, in an upright position was a collared urn (Fig. VI.15) across the mouth of which had been laid a pink/brown clay packing. On the south and west sides of the urn, protruding from the fill of the pit, were three slabs which had been inserted either as packing to support the urn or as a protection for it. The base of the vessel was standing on a small slab of millstone grit.

No old turf line or buried soil horizon was visible beneath the basal layer of stones. Donaldson (pers. comm.) has suggested two probable reasons for this, either (a) the percolation of rainwater down through the cairn had leached out any old turf line or (b) the surface had been truncated prior to the construction of the cairn. However, sealed beneath the basal layer, and lying on the natural surface, was a considerable scatter of charcoal fragments (see section of Chronology below). A full discussion of the possible importance of both charcoal and cairns in the context of prehistoric land use can be found in Chapter X below (pp. 363-365).

Cairn No. 6 (B14)

The smaller of the two cairns had a totally different structure. Turf removal showed it to be comprised of loosely packed, small, angular pieces of local carboniferous limestone, constructed against the northern side of a large earth-fast boulder. The small stones covered what appeared to be a prepared base of slabs and boulders, possessing two definite circular elements (Fig.VIII.13).

(a) an outer slab circle, laid directly onto the subsoil and surrounding the whole of the basal layer and,

(b) a smaller circular setting of six boulders and one upright slab which had been set down in an anti-clockwise direction. This surrounded a large flat slab, placed directly onto the mineral soil surface.

Total excavation revealed no features beneath it, though some flecks of charcoal were visible on the surface of the subsoil. Iron pan had also begun to form beneath some of the slabs.

Chronology

Absolute dating of Cairn 1 is provided by two radiocarbon dates. A sample of charcoal from the surface of the natural mineral soil beneath cairn 1 (B9) produced a date of 1400$\pm$ 90 b.c. (HAR 3323), while charcoal from layer b, abutting Feature 1 and within Feature 2,provided a date of 1420$\pm$80 b.c. (HAR 3322).

These dates would place the main period of activity at cairn 1 in the early Bronze Age and the occurrence of the tubular jet beads and collared urn would also tend to confirm this. However, it may be postulated that human activity in the area of the cairnfield goes back to the Neolithic, cf. the finding of a polished stone axe at Rogerwell Hush(SI 13) less than 200 m north east of cairn 1, (B9).

Crawley Edge - some structural affinities

'Stone circles' beneath barrows and cairns seem to have been a feature noted by many early workers and several possible parallels for Features 1 and 2 have been found throughout northern Britain and the Midlands. J. Hewart Craw excavated a cairn at Hag Wood in the Parish of Foulden, Berwickshire,to reveal a structural sequence not unlike that observed at Crawley Edge (1914, 318, Fig. 2), the major difference being that the cairn contained at least three cists within a third and smaller stone setting. Associated artefacts consisted of a food vessel urn and beaker fragments.

Stanton Moor in Derbyshire has also produced several parallels for the stone features beneath cairn 1. J.C. and J.P. Heathcote excavated at this site from 1930 to 1934, and cairns with similar structures are well documented (1930, Fig. 5; 1936, Figs. 1, 3-4 and especially Fig. 6). As well as producing interesting structural analogies to cairn 1 at Crawley Edge, Stanton Moor has also produced pottery with similar decorative traits to those observed on the Stanhope collared urn (see above, Chapter VI, p. 202).

More recently, Bury Archaeological Group has excavated a very interesting site at Wind Hill, Lancs.(Tyson, 1972). This cairn was very similar to Crawley Edge 1, possessing a satellite kerb almost exactly paralleled by Feature 2 (Tyson, 1972, Fig. 3).

Crawley Edge - a general discussion

Groups of small cairns similar to those which occur at Crawley Edge are known from all over the Highland Zone of Britain, from areas as far apart as the moors of Yorkshire, Northumberland, Cumbria, the Scottish Uplands and the moors and mountain slopes of North and South Wales. This section attempts to set the site at Crawley Edge into a broader context.

A major point to emerge from general research into small cairns is that nationally the numbers of cairns recorded in different regional groups varies tremendously. Elgee (1930, 99) records 1,300 and 800 respectively for two sites, John Cross Rigg and Danby Rigg in north east Yorks.,while in Northumberland,at the sites on Camps Hill and Whitehill Head, Chalton Sandyford, 152 cairns have been noted (Jobey, 1968, 6). Scott-Elliott and Rae have done considerable work on small cairns in Dumfriesshire (1967) and in excess of 90 cairns have been recorded at several sites.

However, this situation can be contrasted at sites in Cumbria for example. Here, Cherry's work (1961, 7-10) on sites at Devoke Water, Water Crag, Birkerthwaite and Ladder Crag have shown that these sites have 70, 84, 21 and 20 cairns respectively. South Wales has produced even smaller groups, e.g. Twyn Brynhir, Hirwaun,Glam.,17 and

Bwlch Garw Mynydd, Caeran, Glam., 4 (Fox and Thriepland, 1943, 91, nos. 1 and 8).

Crawley Edge then, with a minimum number of 27 cairns, would seem to fall into the lower end of the scale. However it should be remembered that the whole of the western edge of the spur has been extensively quarried. This may have resulted in the loss of many sites. Further cairns may also be revealed as a result of the periodic burning of heather on the Fell. In terms of altitude, the site centres around 330 m (1050 feet OD), and this would seem to bring it into line with other such recorded sites. The following table (Table VIII.4) gives altitudes of a sample of cairnfield sites in various areas of Britain. The table falls into two parts with the general height range of sites in Yorkshire, Dumfriesshire and Glamorgan being plotted on the left hand side (after Elgee 1930, 122; Scott-Elliott and Rae, 1967, 99 and R.C.A.H.M. (Wales), 1976, I, 105-109) and individual sites, selected randomly from published sources, on the right.

It is not suggested that this is a 'true' reflection of the original altitudinal distribution of cairnfields. In reality it probably only reflects recent and modern land use patterns. Small cairn groups may well have occurred in 'lowland' areas, but if one accepts Stevenson's redefinition of the Lowland Zone, "as the area with little land use variation per unit area and a high proportion of agricultural land" (1975, 106), then their chances of survival will have been minimal. Stevenson goes on to point out, using Perthshire as an example, that, "areas of houses, field systems, clearance cairns and small and large burial cairns of various types ... are almost invariably found in areas that are only just marginal to the present arable zone" (1975, 107). At Crawley Edge a similar situation prevails. The main Fell wall, dividing improved land from open fell, is less than 400 m south of the central area of the site. At present, the division is between fell and

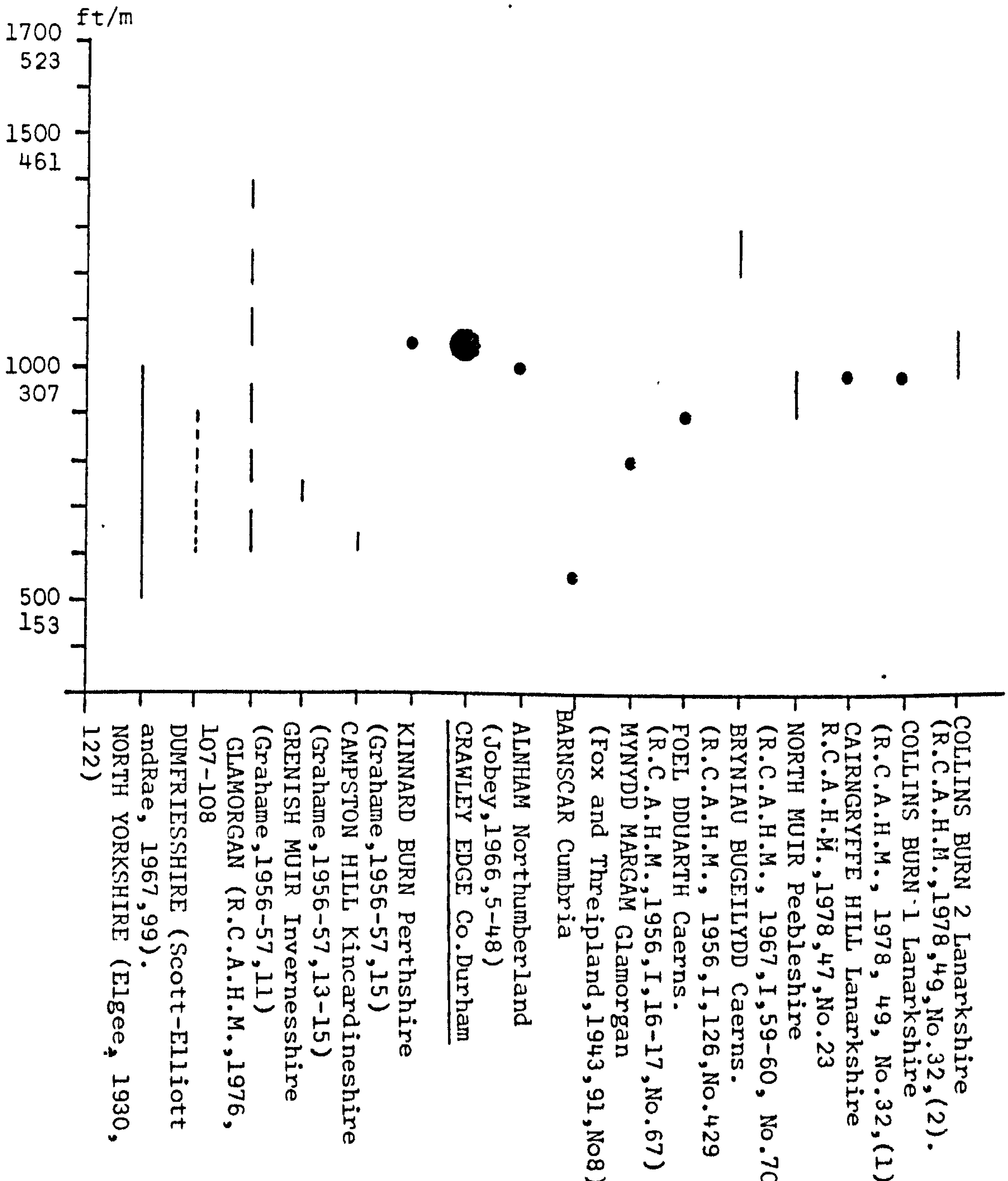

Table VIII.4 Altitudinal location of various cairnfield sites in Britain.

improved pasture but the presence of ridge and furrow ploughing in the fields attached to Jolly Body Farm (NZ 004 395) and in locations above 1000 feet OD (307 m approx.) on the east side of the valley of the Shittlehope Burn, shows quite clearly that cultivation could still be possible up to around 1000 feet OD (307 m approx.).
If in the last 100-150 years, pressure on land had dictated that the fell wall should be moved upslope and new land taken in, then the site would undoubtedly have been destroyed. A similar situation prevails in Teesdale where fieldwork by Coggins has revealed several groups of small cairns associated with settlements above 1000 feet OD and just outside the boundary of the modern enclosed land (D. Coggins, pers. comm.).

Elgee, discussing the location and siting of the majority of cairn groups identified in north-east Yorkshire,noted that they were absent from the central watershed being,"chiefly situated on moory slopes often just above the present cultivation level especially on the ends of spurs between two streams" (Elgee, 1930, 122). He also records that cairnfields rarely occupied only the flat tops of the spurs and that usually the cairns stood on dry land avoiding boggy areas. This description fits the Crawley Edge site almost exactly (Fig.VIII.11). and a similar situation has been noted by Walker in Cumbria (Walker, 1965, 53).

Two of the largest cairns at Stanhope (Nos. 1 and 2, B9 and B10) are false crest sited, a phenomenon which can again be paralleled from other sites, for example, above Beacon Tarn on the Blawith Fells in Cumbria (Fell, 1964, 3) and at many sites in Dumfriesshire (Scott-Elliott and Rae, 1967, 99), while parallels for the oval and oblong cairns can be drawn from nearly all the areas in which small cairn groups occur, e.g. Hirwaun, Glamorgan (Fox and Thriepland, 1943); Crosby Gill and Crosby Thwaite, Cumbria (Cherry, 1961, 13-14); North Muir, Peebleshire

(R.C.A.H.M.(Scotland) 1967, I, 59-60, No. 70) and at sites throughout Dumfriesshire (Scott-Elliott and Rae, 1967).

Several sites also show the clustering of smaller cairns around a larger one such as occurs in Group 1 at Stanhope. Greenwell noted this phenomenon in the Northumberland parish of Eglingham, (1877, 420-421) and Elgee too recorded this feature at several Yorkshire sites such as the cairnfield between Glaisdale and Great Fryup Dale (Elgee, 1930, 100). This phenomenon was also observed from at least the nineteenth century onwards in Scotland as the Rev. J.M. Joass noted at sites in Inverness, Ross and Sutherland, "near or within these groups I have seen larger cairns, chiefly made of stones and seldom turf covered. These often contain cists, sometimes double. They are called King Cairns ..." (Greenwell, 1877, 420-421).

There is much controversy as to whether these cairns are in fact small burial cairns or the result of field clearance prior to agricultural activity. The writer believes that both functions are not necessarily mutually exclusive and in Chapter X this point is dealt with more fully with special reference to Crawley Edge.

CHAPTER IX

LATER PREHISTORIC SETTLEMENT SITES IN THE WEAR VALLEY (Fig. IX.1)

Recently Clack and Gosling, writing about the structural remains of prehistoric settlement sites in the north, have highlighted the paucity of evidence for Bronze Age settlement (1976, 23-24). However, they are at pains to point out the diversity of settlement type when one is dealing with the "Iron Age/Romano British" periods (1976, 24). In their discussion of this evidence they bring to the fore, albeit unknowingly, several major stumbling blocks which, the writer believes, have barred the way to a fuller understanding of later prehistoric sites in the area. These points are of direct relevance to the evidence for settlement sites recovered in the Wear Valley, so it is appropriate to quote them in full:

(1) "One of the principal difficulties in the study of Iron Age and Roman-Native settlements in the north is the paucity of material remains and especially pottery, which have conventionally formed the basis for chronology" (Clack and Gosling, 1976, 24).

A certain ambiguity of argument is apparent here - if there is a lack of material remains which can be conclusively dated, how do we know that the sites being studied are Iron Age or Roman-Native sites? Many sites have surely been so identified purely on intuitive assumption. Further, this problem is exacerbated in a Wear Valley context by the very meagre amount of excavation which has been carried out on supposed later prehistoric settlements.

(2) "In the absence of sufficiently diagnostic artefacts, we are dependent almost entirely upon the gradual accumulation of C14 dates for individual sites and structural phases within sites; for the construction of a chronological framework for the later prehistoric settlement of the region and as a means of relating settlements one to another" (Clack and Gosling, 1976, 24).

Taken at face value this would seem to be a reasonable statement. However, when seen against a Wear Valley backdrop there are, again, certain problems. The lack of excavation in the area means that dates are few. Indeed from five sites which have seen some excavation within the area in the last twenty years there are, at the time of writing, no C14 dates available. This lack of dates, coupled with the "educated guesses" made by some workers about site chronology, has been instrumental in the perpetuation of a model of site interpretation which is intimated by Clack and Gosling's third statement:

(3) "In the meantime it is only possible to analyse sites in their morphological groups, and to point to relationships between these groups where site context or absolute chronology permits" (Clack and Gosling, 1976, 24).

Here we see manifested one of the major constraining approaches to an "objective" understanding of the chronology and relationship of sites. Ostensibly there would seem to be nothing wrong with a comparison of observed features, either from air photographs or visible on the ground, between sites. (Though one could query whether, without excavation, one was comparing like with like.) However, when what small chronological certainty that exists is introduced into the scheme, and morphological similarity is taken as being synonymous with chronological similarity, then biases creep into interpretations.

A classic example of this can be seen as a result of the excavation carried out by Jobey at West Brandon (NZ 201 399), (Jobey, 1962) (S28). Here a single circular hut inside a sub-rectangular enclosure was identified from an air photograph and excavated. Dating evidence was slight, so much so that Jobey summed up his chronological discussion thus: "If conjecture be allowed on such negative evidence, perhaps an occupation of the enclosed homestead may be envisaged tentatively somewhere in the second or third centuries B.C." (1962, 29). However, that excavation set the tone for the interpretation of morphologically similar sites in County Durham, particularly those identified from air photographs. The reverberations of this tone have lasted at least until Haselgrove's recent work on the magnesian limestone of the lower Wear Valley area (1980, 1980a; Haselgrove and Allon, 1981 and forthcoming). Fieldworkers have tended to adopt the attitude that, "if its round and inside an enclosure it must be Iron Age" - a strange amalgam of morphological analysis and limited chronological perspective.

On a wider scale, George, in her survey of "Later Prehistoric Settlement in Eastern County Durham" (1976) has highlighted an inherent circularity in the overall dating of "Later Prehistoric" sites. Writing of her morphological classification of sites (which is a useful one) she says,"the classification itself has limitations. Only one of the sites considered has been conclusively dated" (West Brandon - but see above), "the others have been assigned to the Prehistoric period by comparison with evidence from Northumberland, Cumbria and North Yorkshire or simply by elimination (if it is not positively of another period, a site could possibly be prehistoric)" (George, 1976, 3).

With these general points in mind then it is the aim of this chapter to deal with evidence for "settlement sites" identified in the Wear Valley from aerial photographs and from field observations which may date broadly to the "prehistoric" period. Under this all embracing heading are included sites such as hillforts, enclosures of varying form, huts, field systems and cultivation terraces. In the course of the discussion it is hoped to enlarge on some of the general points already made and to produce a critical analysis of these sites.

Later prehistoric settlements in the county have been studied intermittently since at least the eighteenth century (Cade, 1785, 1789; Surtees, 1816-1840, etc.) and the main concentration has been on earthwork sites. In 1905 the V.C.H. devoted a whole section of volume one of the

Durham coverage to "ancient earthworks" (see above p. 64). However, there has been no concerted effort in this field until the last twenty years when, as a result of Jobey's pioneering work of the late 1950's in Northumberland, interest was aroused in County Durham. The continuing work of D. Harding, McCord and Jobey has shown the potential of the area for the production of supposed later prehistoric sites and the Wear Valley, especially in its lower section has figured large in this.

In the early 1960's West Brandon was the only dated site in the whole county and Harding writing eight years later, could only document one further morphologically similar example and was at pains to account for the lack of observed sites (1970, 193). However, he realised that "it has become a matter of urgency that a systematic research project, incorporating the full facilities and benefits of aerial photography, should be launched in the region south of the Tyne, where planned excavation could well provide the missing links which are so necessary if the discoveries already recorded in southern England and Scotland are to be co-ordinated into a meaningful whole"(Harding, 1970, 194).

This was a portentious statement as up until 1977 Harding was involved in large scale flying of areas of the county. In the seven year period new sites accumulated at a steady but modest rate and writing in 1978 he highlighted the potential of the middle and lower reaches of the river valley as "strong candidates for intensive air and ground survey" (1978, 7). Since that time, and since George's work on sites in eastern Durham (1976), interest in "later prehistoric settlement" has been maintained. In 1978 Bowes Museum produced their "Preliminary Survey of the Archaeology of the Coal Measures and the Magnesian Limestone Escarpment", a document of varying quality, but one which listed at least 350 "sites" visible on air photographs, relevant to the study area (Turnbull and Jones, 1978). These vary in form from ditches, to circles to enclosures, though the entries in the survey are far from helpful to the researcher and many sites were identified from very poor quality, high level ,vertical photographs. As a result of time constraints it has not been possible to check all of these. However, the writer has gone over the available vertical RAF cover and other aerial surveys, paying particular attention to the least surveyed area of the dale. The results, enigmatic though some of them are, are contained in Appendix 4. Fieldwork in the dale revealed several sites, some previously unrecorded and has added significantly to complexes of features already known about (see Inventory).

Excavation was actually carried out at three sites of relevance to this study in 1978-79. Turnbull's excavations at the 'promontory fort' of Stockeley Beck camp (1978) (NZ 188 379) (S2) (Fig. IX.5), produced little information about the nature of the structure and Haselgrove's excavations at Coxhoe (NZ 326 360)(Pl.IX.3b)and Shadforth (NZ 339 402) (S24) (Pl.IX.7a), (1980, 1980a; Haselgrove and Allon, 1981 and forthcoming), produced structural evidence for both sites, but little else.

Despite this awakening of interest in recent years, the number of "accepted" sites in the whole length of the Wear Valley is not great. The Northern Archaeological Survey's map of Iron Age/Roman sites shows only six examples from the whole area covered by the present research. The whole of the Tees Valley to the south has produced only ten examples and the total count for the whole county is only twenty sites. This may be unfair to the compilers, for although the maps were published in 1978, they were drawn in 1974 and so did not have the benefits of later research.

As a result of the present research some fifty-five enclosures and isolated huts of various forms have been identified and two possible unenclosed sites, in addition to eight possible groups of cultivation terraces and four complexes of fields, were recorded.

This total number of sites though is still very small when compared with areas to the north, south and west, and in trying to account for this lack of sites we obviously come back to some of the general points raised earlier in this work (see above, Chapter 1, pp28-34). In the past some workers have suggested that there is good reason to believe earlier ideas such as those embodied in the twelfth century "Life" of St. Oswald, that the area was almost uninhabited owing to its difficult nature and to apply this attitude to more remote periods (Jobey, 1962, 1). Piggott (1958, 1-28) has suggested that the lack of "Iron Age" settlements in the north in general, when compared to the south of England, is a reflection of the variation in the economic basis between what for him were two culturally distinct zones. The people of the Highland Zone, were semi-nomadic pastoralists who did not need the permanent settlement sites of their more sedentary, arable farming, southern counterparts.

Conversely, as Harding has indicated (1970, 193),some pre-historians have explained the lack of recognisably "Iron Age" sites by invoking an extended time lag,"whereby it was thought Late Bronze Age modes may have continued uninterrupted by Iron Age innovations virtually to the eve of the Roman Conquest" (see also Raistrick and Bennett-Gibbs, 1934). This may have explained for some people the lack of sites in the area,but such a solution surely begs the question of where are the Late Bronze Age settlements that supposedly continued in use?

This last solution loses all credibility in the light of recent C14 dates for settlements from the north (e.g. see below - discussion on chronology) and the Piggott model falls purely on the basis of recent palynological work which has shown considerable clearance and agricultural phases from the Early Bronze Age onwards in the Wear Valley and the north in general (see above, Chapter II). If the clearance horizons are there, there must be settlements to go with them somewhere.

Differential preservation and destruction, recent land use and differential fieldwork must be among important factors when trying to account for the small number of sites in the study area. The whole of the valley has been extensively quarried and Fig.IX.3 shows how this process may have affected site distribution over the whole of the northern counties of England. (Fig.I.6 shows a detailed breakdown of quarried areas for the upper dale). The valley as a whole has also never had its equivalent of a George Jobey - a further point which must be reflected in the known number and distribution of sites.

One further complicating factor may be the fact that many known sites especially in the lowland areas of the north have been identified from soil, shadow or crop marks on air photographs. As Turnbull and Jones have pointed out (1978, 11) the photographic cover available for lowland Durham (including the lower and middle Wear Valley area) is inadequate. Most of it consists entirely of vertical photographs taken from very high levels,(often above 10,000 feet),which are not particularly suitable for archaeological purposes (see above Chapter VIII). As a result it cannot be hoped to discover more than a small number of existing sites from these sources. This problem was compounded in the upper dale by the nature of the terrain which meant that sites whose position was known on the ground could not, on occasion, be located on the available photographs.

Recent agricultural land use may also be a factor of importance in trying to account for gaps in distributions (see above, Chapter I pp. 30-31). As Turnbull and Jones indicate much of lowland Durham is under pasture, as is most of Weardale, crop and soil marks then are least likely to show in these areas. What is surely needed here, for both the valley and the whole county,is a campaign of organised, low level flying for specifically archaeological purposes. Such a scheme should concentrate as Haselgrove (1980a, 41) has suggested, not only on the lighter soils of the district but on the heavier drift covered areas which in the past have been thought,quite wrongly,to be devoid of sites (for the potential results of such a survey see for example Pickering, 1979).

One final point here, which is surely germane to any discussion on the lack of observed "prehistoric" settlement sites,may be the role of later settlement in masking earlier evidence for human activity.

Roberts has pointed out (1977, 19) that "farms" have to function within a set of parameters imposed by physical and climatic conditions and that agricultural settlements can only develop where a combination of factors such as relief, climate and soils actually allows "farming" (either at subsistence or more advanced levels) to take place. A similar point has been made recently by Johnson (1981, 381-382). In other words, farms tend to locate on or near to the best land for producing the necessary foodstuffs (animal or vegetable) to keep the farmers alive - a point probably of some importance in the context of settlement establishment and development in the dale at all periods. Here, the physical nature of the landscape, the deeply incised, narrow valley, limits considerably the area of good land available for settlement.

The Durham Archaeology Committee in their report on "The Archaeology of the Durham Dales" identified five types of land and landscape in the area. Their type I and II, "dale floor, lower sides and tributary valley bottoms" and "dale sides and tributary valleys" are an integral component of the argument which follows (Roberts, 1980, 2).

It is on the Class I land (the "best" land in the dale - medium quality agricultural land) that the villages, some, like Stanhope and Wolsingham, bearing Anglian names, are found (Watts, 1970, 254 and 259). On the Group II land which seems to have seen "piecemeal reclamation" since the Saxon period, it is quite clear, as Roberts points out, that the present farms and fields overlie earlier landscaped (1980, 2). This is clearly demonstrated in the Dun Hill/Rose Hill area (NY 937 386) (S67) (Pl.IX.20b), and at Old Park Farm (NY 926 382) (S34 and S35), (Pl.IX.10b)(Fig.IX.21 and High Northgate (NY 937 401 (S47), (Pl.IX.15b). At the latter site the Great Park Wall cuts right across the earthwork. Similarly, above Stanhope, on the valley side of the Shittlehope Burn, (centre NY 014 395) (S68), a whole system of fields occupies the south-west facing slope.

These fields do contain rig and furrow but at heights of around and above 1000' OD (307 m. approx.) they may well be earlier enclosures which have seen later re-use.

Thus it may be that later farm expansion may have taken place over land settled and divided up in earlier periods, effectively destroying or incorporating previous earthworks and field boundaries. Fig.IX.2 (taken from Roberts, 1977, Figure 48), shows the rate of settlement/farm expansion from the late fourteenth century until 1799, and it can clearly be seen that farms have clustered in the valley bottom on the terraces and lower slopes. The very area, in fact, where the complexes at Old Park Farm and Dun Hill, preserved until recent times because of their location in the Great Park, occur (Fig.IX.21).

CLASSIFICATION

The classification of the possible "later prehistoric" sites in the study area is also not without its problems. George has noted some of these (1976, 3) but there are others, especially when we are dealing with sites identified from air photographs. For example, Haselgrove's exploratory work at Strawberry Hill, Shadforth (NZ 339 402) (S24) in the middle Wear area has shown the danger of interpreting what appear from the air, as regular, linear and rectangular patterns, as field systems and enclosures (Haselgrove, 1980a, 39-43). Several of the observed features here resulted from natural fissuring of the bedrock. This point is even further emphasised by work at West House, Coxhoe (NZ 326 360 (S12), a site again on the limestone edge, overlooking the middle section of the Wear Valley (Haselgrove and Allon, 1981, 16-20). Here it is concluded that,"the excavations demonstrated that all the crop marks, other than those of circular building and enclosure ditch were the product of geomorphological processes rather than of human interference with the landscape" (1981,19-20).

These observations may be of great importance when we come to thinking about the supposed "fields" associated with other Wear Valley sites such as Plawsworth (NZ 282 483) (S50)(Fig.IX.27)(Pl.IX.16b) and Holburn Wood (NZ 193 409) (S49) (Fig.IX.26). Many of these markings may simply be the result of natural geomorphological processes and unrelated to human activity at all.

The Coxhoe excavations also raise a further point which is apposite to a preliminary discussion on site classification. How can we be sure that what is manifested on the photograph is a correct representation of the structural remains which could be identified beneath the topsoil? The standard view of lowland "Iron Age/Romano-British" settlement in the north, again conditioned by the West Brandon excavation and influenced by work at southern sites like Little Woodbury (Bersu, 1940, 30-111) and Pimperne (Harding and Blake, 1963, 63-64), is that of a simple enclosure with a single round house placed within it. The Coxhoe and Shadforth sites are seen as variations on this theme and one might also mention in passing other such sites in the study area, i.e. Esh, Hagwood, (NZ 194 431) (S14) (Fig.IX.9); Brancepeth, Brown's Den 1 (NZ 207 389) (S4) (Pl.IX.1b); Pittington, Fatfield House (NZ 314 439) (S23) (Pl.IX.6b); Spennymoor, Kirk Merrington (NZ 266 315) (S36) Belmont, Low Grange (NZ 300 448) (S30) (Pl.IX.10a).

However, just over a quarter of the site was examined at West Brandon (estimated from published plan), a quarter was dug at Coxhoe (Haselgrove and Allon, 1981, 16) and an area 10 m x 3 m was cleared in the interior of the Shadforth site (Haselgrove, 1980a, 41). None of the other sites mentioned above have been excavated and one must surely ask whether this is sufficient data on which to allow the stereotype to stand without criticism. Excavation at other sites such as Burradon in Northumberland, revealed a whole series of circular buildings when only one central structure had been identified from the air photograph (Jobey, 1970, 51-96) and excavations now in progress at Thorpe Thewles in

Cleveland (Haselgrove and Allon, 1981, 18) which are revealing a comparable series of structures which are at odds with the photographic evidence, must be taken as a warning against such a simplistic view. Many features do not generate cropmarks. Differential cropmark production in certain areas of the study area may, then, be a variable with important implications for any system of site classification which is drawn up.

In the light of these points, the following morphological classification should be taken only as tentative and open to review in the light of future excavation which may take place. What follows is based on the classification scheme devised by George (1976, 3-7) with modifications in the light of the writer's own research.

(1) Hillforts

Sites which can be included under this generic heading are few in the valley. Five are known in the whole county and three of these are in the study area. Of these, one, that recorded at Toft Hill (S3), seems to have been located on a hilltop at NZ 154 285. This site was destroyed without excavation by open cast mining in the 1950's. The site was recorded in the V.C.H. but no further information is available (1905, I, 348).

The two remaining sites are of the promontory fort class. Maiden Castle, Durham (NZ 282 416) (S1) (Fig.IX.4), and Stockley Beck Camp, Brancepeth (NZ 188 379) (S2) (Fig.IX.5). Both sites have seen some excavation, the former by Jarrett (1965) and the latter by Turnbull (1978, 22).

Maiden Castle, occupying an elevated promontory, overlooking the Wear to the south of Durham, is bounded on three sides by steep natural slopes. The western end, the only possible approach to the site, along the ridge, is cut off by a widely spaced bank and ditch. The whole site is now heavily forested. Jarrett's excavation, assessed by Harding as "very much a trial operation and ... not (to be regarded) as in any way an extensive or adequate investigation" (1972-73, 2), produced evidence for three phases of activity which can be summarised as follows:

I - A river cobble revetted clay bank and "insubstantial" palisade.

II - The cutting back, internally, of the clay bank for a retaining wall of roughly dressed sandstone. (One of these bore a mason's mark).

III - Support for the wall by stakes.

Phases II and III were seen as Medieval in date on the evidence of the mason's mark and pottery from the topsoil, and further Medieval pottery was recovered from the site in the early 1960's by Dodds and Parsons (W. Dodds, pers.comm.). It is, though, quite possible that Phase I is prehistoric in date and more will be said about this in the section on chronology below.

Stockley Beck Camp encloses a huge area (7,500 sq. m approx.) and is located on a low promontory between two branches of the Stockley Beck. As at Maiden Castle, the north, south and east sides of the site fall away steeply to the stream and the western approach is closed off by a bank and external ditch. In 1905 defences on the northern side of the site were visible but there is now no trace of these (V.C.H., 1905, I, 346-348). Again, as at Maiden Castle, the whole interior is wooded. Excavations across the remaining defences in 1978 by Turnbull, revealed no dating evidence and little information about the structure of the bank and ditch itself (Turnbull, 1978, 22).

(2) <u>Large Rectilinear and Polygonal Enclosures</u>

Twenty six examples (25 rectilinear and 1 polygonal) have been recorded, twenty one, including the one polygonal enclosure, Haswell, Pig Hill (NZ 369 445) (S17) (Pl.IX.4a), come from the middle Wear (S4 - S8, S12 - S21, S23, S24, S26 - S29), three are from the lower dale on Cockfield

Fell (S9 - S11),(Pls.IX.2a, IX.2b, IX.3a), one is from Langleydale and Shotton in the lower dale (NZ 080 235) (S22), and one example comes from Jollybody Farm, Stanhope (NY 004 395) (Fig.IX.14, Pls. IX.7b, IX.8a), in the upper dale (S25). This is the largest group of sites recorded from the valley, and as George has pointed out, none of them is defensively sited, all being on relatively open ground (George, 1976, 3). In size these enclosures range from 200 sq. m as at Fatfield House (NZ 314 439) (S23)(Pl.IX.6b), to 10,350 sq. m at Jolly Body Farm. S4, S12, S17, S23 and S28 all show traces of circular inner cropmarks while at Esh, Hagwood, (S14)(Fig.IX.9)and Shadforth, Strawberry Hill (S24) (Pl.IX.7a) two possible circular features are visible in each enclosure. At Jolly Body Farm (S25) a small platform, which may have been the steading for a small structure, approximately 9 m x 6 m is visible on the west side of the main enclosure (Fig.IX.14).

Four sites, West Brandon (Jobey, 1962) (S28) (Fig.IX.17), Shadforth, Strawberry Hill (Haselgrove, 1980 and 1980a) (S24), Coxhoe, West House (Haselgrove and Allon, 1981, 16-21 and forthcoming) (S12), and Lanchester, Castle Dene (NZ 136 496) (Reed and Austin 1976, 216)(S19)(Fig.IX.17) have received excavation to a greater or lesser degree. To the writer's knowledge, the Lanchester, Castle Dene site has never been published apart from the reference noted above.

The Jolly Body Farm site (S25), the complex on Cockfield Fell (S9, S10, S11), the Haswell, Pig Hill enclosure (S17) and the site at Langley, Park House West (NZ 203 459) (S21)(Pl.IX.5b),are worthy of further comment. S25 was located by the writer in the course of field work in 1976. Conversation with the tenant of the farm revealed that Mr. J. Newrick had noted the site and pronounced it to be "an early settlement". The site consists of an embanked enclosure which seems to be truncated by a later field wall. A possible entrance to this enclosure is visible at its north-east corner. In places the bank has been destroyed by later ploughing, while the present field wall, which respects the main bank and ditch of the site, overlies what seem to be extensions from it (Fig.IX.14 and Pls.IX.7b, IX.8a).

The large rectilinear enclosures on Cockfield Fell in conjunction with a curvilinear earthwork (S42) form a very interesting group (Roberts, 1975). The Fell itself is a rare feature, being one of the few surviving lowland fells in the county, the rest being above 800 ft. O.D. (246 m approx.). The majority of the lowland fell areas in Co. Durham were enclosed between 1750 and 1850 (Roberts, 1975, 48), so the 820 acres (330 ha) of Cockfield Fell provide a tantalising indication of how many sites may well have been destroyed through early land reclamation. Roberts (1975, 48-50, pl. V) has published a very fine air photograph of the area and has discussed the sites of possible prehistoric date in some detail. His site, a5 (1975, 48, pl. V) (S11), which has rounded corners and a single entrance on its north side, is of interest. The site is difficult to locate on the ground but probing by Roberts indicated a substantial stone rampart with a ? later building in the south-west corner. He has suggested that this site may be similar to the enigmatic, possibly early medieval, "Castles" site at Hamsterley (NZ 103, 331), (though this hypothesis would need to be tested by excavation), and that a linear ditch to the north-west and faint traces of a field system to the south-east may be related to the enclosure (Roberts, 1975, 48-49).

The Pig Hill site (S17) has been singled out because of the nature of the enclosure. On the air photographs (Pl.IX.4a)this takes the form of a double ditch or double palisade. The ditches are very close together and in places the cropmark seems to merge. An entrance may be suggested on the south-east side where for a short distance only one ditch marks the perimeter and the northern corner may still survive, on scrub land, as an earthwork. At least one circular feature may be visible inside the enclosure. No morphological parallels for this site could be found in the existing air photographic record for County Durham.

Finally, the Langley, Park House, West, enclosure (S21)(Pl.IX.5b), though slightly larger in size, is an excellent morphological parallel for the small rectilinear enclosure of Old Park Farm I (S33), which remains as an earthwork in the upper dale (Pl.IX.10b). S21 exhibits similar radiating field boundaries to those visible at S33, and it is a great shame that the former site is now enclosed by forestry on three sides.

None of the excavated, large rectilinear sites has produced closely dateable artefactual material.

(3) Small Rectilinear Enclosures

Seven examples, four from the middle Wear (S30, S32, S35, S36) and three from the upper date (S31, S33, S34) have been recorded (Pls.IX.10a, IX.10b, IX.11b, Fig.IX.17). Again these sites are not defensively located and they are noted for their small area (George, 1976, 5). The four in the middle Wear all show up as cropmark sites and two, Kirk Merrington (NZ 266 315) (S36), and Belmont, Low Grange (NZ 299 448) (S30) (Pl.IX.10a), show circular, inner, cropmarks. As Pls. IX.10b, IX.11a and IX.20a and Fig.IX.21 show, the sites at Old Park Farm (NY 926 385) (S33, S34) are in close association with a complex of field boundaries which pre-dates the field walls in use today. S33 and the boundaries are stone built, while S34 may be a scooped enclosure which has undergone much later disturbance and robbing. Reasons for their remarkable state of preservation overall, are given above (Chapter I, p. 33). No clearly distinguishable features are visible in the interior of either enclosure.

The site among the complex on Bollihope Common (NY 977 352) (S31) (Fig.IX.19), is also stone built, with a possible, slightly inturned, entrance on the east side. A rectangular collapse of stone on the north-west corner of the enclosure may well be a destroyed hut, while a small dividing wall may be visible in the south-east corner. George has suggested that the "Rift" site at Pittington (NZ 321 451) (S35) (Pl.IX.11b) and the enclosure at Cassop-cum-Quarrington, High Butterby (NZ 304 388) (S32), may also be of stone construction (1976, 5, but see her footnote 3, p.22). Again, none of these sites has been excavated.

(4) Curvilinear Enclosures

Twelve are known from the study area; five from the upper dale (S37, S38, S39, S40, S47), three from the lower dale (S42, S44, S45), two from the middle Wear (S43, S46) and two from the lower Wear (S41, S48).

Included in this category, following George (1976, 5), are "nearly circular" enclosures, i.e. High Northgate (NY 937 400) (S47)(Pl.IX.15b) Fig.IX.25);Cockfield Fell (NZ 118 250) (S42)(Pl.IX.13b, Fig.IX.22); Croxdale, Sunderland Bridge (NZ 270 369 (S43)(Pl.IX.14a) and three of the sites on Bollihope Common (centre NY 984 353) (S38, S39, S40)(Pl.IX.12b, Fig.IX.20); irregular cirvilinear enclosures, i.e. Chester-le-Street, Hedley Hall West (NZ 217 563 (S41), and an oval enclosure at Etherley, Copeland House, (NZ 166 259 (S44) (Pl.IX.14b).

The High Northgate and Cockfield Fell sites seem quite similar in terms of construction. Both are double banked with a medial ditch and both are approximately the same size, 120-125 m in diameter. High Northgate has seen some excavation by Hunter and Dodds in the early 1960's (Dodds, 1965, 1-2).

A small trench 5'6" x 5'0" (1.6 m x 1.5 m approx.) was laid out across the rampart on the western side. The inner rampart was compressed and consolidated and approximately 8' (2.4 m approx.) wide, while the ditch immediately in front was 10' wide (3 m approx.) and 4' deep (1.2 m approx.), the "foot or so of dark organic soil on the bottom", indicating to the excavators "a considerable lease of life" (Dodds, 1965, 1). The most interesting feature recorded was a spread of boulders on either face of the ditch, "indicating that originally the rampart had been topped by some sort of a stone wall and a step-like feature in front and below the rampart revealed that the outer face of the wall had been carried down as a revettment" (Dodds, 1965, 2).

Excavation of a small "hollow" (no size or location is given), revealed a circular stone built structure, within, and to the west side of which, was a 3" (76 mm approx.) deep deposit of mineral coal and stick charcoal, and much evidence for burning. This may well have been an oven or a kiln of some sort. The few finds made clearly highlight the problems outlined above (p. 279); four pot boilers, three stone discs, one "microlithic" flint core, one fragment of green glazed pottery (c. 14th - 15th century A.D.), one fragment of coarse grey pottery which could have been of any date from the Iron Age to the Post Medieval period, (Dodds, 1965, 2). Unfortunately there is no record of the context of any of these finds.

Thus, there may be an indication of features inside the High Northgate enclosure, and the Copeland House and Sunderland Bridge sites (S44, S43) also reveal additional features on the air photographs. A curvilinear enclosure is visible at the entrance of the former site, (Pl. IX.14b), while the latter may well have antennae ditches leading from its entrance. A small "D" shaped enclosure and a ? circular feature are also in close proximity to the main enclosure at Sunderland Bridge (however,these may well not be directly associated with it). Evenwood and Barony, Witton Castle, East Park Farm (NZ 158 305) (S45) also exhibits a possible circular feature inside the enclosure, and a hut scoop has also been recorded by the writer on the north side of the largest curvilinear enclosure on Bollihope Common (S40) (Pl.IX.12b; Fig.IX.20).

The curvilinear enclosure at the west end of the Bollihope Common complex is worthy of comment (S37) (Pl.IX.12a, Fig.IX.20). It measures approximately 22 m x 18 m, the walls are dry stone built and approximately 2 m wide, and a small subrectangular hut measuring 11 m x 7 m is built into the south west corner. More importantly, on the east side the enclosure runs down to a small stream or site which flows down the slope into the Bollihope Burn. The floor of this small stream is very boggy and probing by the writer has revealed the continuation of the walls of the enclosure under the developing peat cover. This may well be an excellent site for examination by pollen and radiocarbon analysis.

(5) Unenclosed Sites

Only two of these have been recorded, Holborn Wood in Brandon and Byshottles Parish (NZ 193 409) (S49) (Fig.IX.26) and Plawsworth, Harbour House Farm (NZ 279 481 (S50) (Pl. IX.16b), though it must be stressed that these are the most tentatively identified sites in the valley area. S49 covers an area of some 11,875 sq. m and S50 some 52,500 sq. m and both are a mass of supposed ditches forming what look like enclosures and fields with the occasional "hut circle". Bearing in mind the remarks made above (p.287), about the nature of the cropmarks in the middle Wear area it is essential that these sites are examined by excavation before anything conclusive can be said about them. In the light of work by Williams (1973, 19-31), the writer is sceptical about the method of formation of these cropmarks - many may be glacial or peri-glacial features. Haselgrove has postulated that the cropmarks observed outside the Shadforth site (S24)(Pl.IX.7a),may indicate possible unenclosed settlement of an early or later date than the enclosure, again a point which needs testing by further excavation (Haselgrove, 1980a, 43).

(6) Isolated Huts

Seven possible examples are known to the writer, six in the upper dale (S51, S52, S53, S54, S55, S56) and one in the middle Wear (S57). Of these six are circular and one is sub rectangular and all, with the exception of the post built structure at West Brandon (NZ 201 398) (S57) (S57), (Jobey, 1962, 22-25) are of stone construction. Four, including the sub rectangular hut are on Bollihope Common (S51 - S54) (Fig.IX.20, Pls.IX.17a, and IX.17b), a fifth is on Cowburn Rigg (NY 992 374) (S55) (Pl.IX.18a), and the sixth example in the upper dale is high up on the slopes of the Shittlehope Burn, above Stanhope (NZ 013 414) (S56) (Pl.IX.18b).

S51 on Bollihope Common, clearly shows one method of construction, having inner and outer wall faces filled with small packing stones. The wall is 1.5 m - 2 m thick with several upright slabs visible and the structure is approximately 9 m in diameter. A similar method of building may be visible at S52, also on Bollihope Common, and S56, the 8 m diameter hut above Stanhope. The Cowburn Rigg structure (S55) shows up as a circular scoop approximately 8 m in diameter with angular stones protruding from the surrounding perimeter.

The West Brandon hut (S57),is approximately 6 m in diameter and of post construction. Six posts, plus a possible central roof support were identified, and stratigraphically the structure seems to be the earliest feature on the site (Jobey, 1962, 22-25). The hut invites immediate parallels with structures in the south of Britain, i.e. Itford Hill, House 'A',(Burstow and Holleyman, 1957, 190), and the central post hole has parallels in a northern context at sites like Comb Scar, Malham, Yorks (Raistrick and Holmes, 1962, 8, Fig. 2).

(7) Cultivation Terraces

These have been identified at eight locations, all in the dale (S58 - S65) and invariably they consist of a series of parallel grass covered terraces, usually following the contours of the valley side, set back from the river, on the lower slopes. None have been excavated and they could be of any date. Many may well have been man-made strips for easier cultivation of the hillslopes or actual lynchets formed as a result of ploughing at some stage,but there is some doubt about this and excavation would be needed to clarify the situation. Williams has suggested that many such features in upland locations could well be altiplanation and solifluction terraces of natural origin (Williams, 1973, 28).

(8) Fields

Complexes of field boundaries have been found in four separate locations in the upper dale. In the region of Dodd House (NY 996 369) (S66) (Pl.IX.19a & b)boundaries enclosing rig and furrow ploughing underlie the modern field walls at a height of around 1000' OD (307 m approx.) and similar boundaries and rig and furrow occur on Shittlehopeside, above the present level of enclosure (NZ 007 396) (S68). The enclosures noted at

Dunn Hill (NY 937 386) (S67) (Pl.IX.20a, Fig.IX.21), again underlying the present field wall system, may well be a continuation of the enclosures and fields associated with S33 and S34.

Arguably the most impressive collection of field walls and enclosures etc. is the group around Unthank on the south side of the Wear opposite Stanhope (NY 993 387) (S69) (Pl.IX.22b). This group is truncated on its upslope, northern, edge by Newlandside Quarry, making an overall interpretation very difficult. However, several phases of enclosure building can be seen on Pl.IX.22b.

A major problem is in dating these boundaries. Many could well be medieval but the possibility must remain that the Dunn Hill group (S67) is prehistoric (L. Drury, pers. comm.) and that the fields on Shittlehopeside and around Dodd Hill may be early enclosures which underwent later phases of use.

Aspects of Site Location

(a) Altitude

Figs.IX.28, and IX.29 show the altitudinal location of all the classes of site discussed above. Only minimum comment will be made here. Large rectilinear and polygonal enclosures are located throughout the study area at heights between 100' OD (30 m approx.), and 950' OD, (290 m approx.), though there would seem to be a concentration of sites between 550' OD (170 m approx.) and 700' OD (215 m approx.). Small rectilinear settlements have a similar widespread altitudinal location, as do the curvilinear enclosures, five examples of which survive at heights above 1000' OD (307 m approx.) in the dale. Isolated huts and the remains of fields and "cultivation terraces", which may be of relevance to this survey, all occur at heights above 800' (246 m approx.). None of the field remains is located below 900' OD (276 m approx.) and these spread upwards to around 1200' OD (370 m approx.)

(b) Soils

Table IX.1 shows the location of sites with regard to soil type in the valley area (information from Stevens and Atkinson, 1970). As can be clearly seen, the majority of sites of all types occur on low base status Brown Earth soils. These are the best agricultural soils in the dale and the middle Wear area (Stevens and Atkinson, 1970, 51). More will be said about this distribution in the discussion on land use models and site function in Chapter X (see pp. 359-360 , below).

Chronology

Any remarks on the chronology of the sites identified must, of necessity, be speculative. In no way during what follows is the writer making definitive statements about site chronology, though an attempt will be made to indicate broad date ranges into which one or more sites may fit on the basis of comparative data from northern contexts.

The hillfort sites are difficult to date. In the past it has been axiomatic that hillforts were of "Iron Age" date but recent work at sites such as Mam Tor (Coombs, 1976, 147-52), Dinorben (Savory, 1971, 251-61) and Moel-y-Gaer (Guilbert, 1975, 109-117; 1976, 303-317) to name but three examples, is pointing to a much earlier date for the initial construction of such sites. The Toft Hill site is now destroyed and Stockley Beck Camp, although it has been excavated, has provided no artefactual or other material with which one can even speculate about its date.

Maiden Castle, however, provides tantalising evidence for a possible early date. Gill and Haselgrove, (pers. comm.), in an application for excavation funds to the University of Durham Excavation Committee in 1979, have speculated that Jarrett's phase I on the site may well be a palisade of Late Bronze Age/Pre-Roman Iron Age date, and that phases II and III represent a later Medieval re-occupation or re-use of the site. Jarrett was of the opinion that the whole structure was Medieval in date and he paralleled it with the site of Lintalee, Roxburghshire,

SITE TYPE / SOIL TYPE	LARGE RECTILINEAR AND POLYGONAL ENCLOSURES	SMALL RECTILINEAR ENCLOSURES	UNENCLOSED SITES	ISOLATED HUTS	HILLFORTS	CURVILINEAR ENCLOSURES	FIELDS AND CULTIVATION TERRACES	TOTAL
Low Base Status Brown Earth	15	5	2	5	3	9	10	49
Surface Water Grey	10	2	-	-	-	3	-	15
Podsols	-	-	-	2	-	-	2	4
Rendzinas	1	-	-	-	-	-	-	1
High Base Status Brown Earth	-	-	-	-	-	-	-	-
TOTAL	26	7	2	7	3	12	12	69

Table IX.1. Location of possible later prehistoric settlement site evidence in relation to soils.

a defended enclosure built in 1317 (Jarrett, 1965, 124-127). However, it seems to the present writer very unlikely that a defended site of this kind would have been built anew at Maiden Castle for, since the eleventh century AD, there had been a strongly defended site on the Durham City peninsula about half a mile away to the north. It is reasonable to suggest that the initial construction of a defended site here is pre-medieval in date. Later, undoubted medieval, activity may well not have been of a defensive nature. Further than this we cannot go though the site may well repay excavation in the future.

Discussion of Maiden Castle in this light raises the question of palisaded sites and their chronology, and inevitably leads us on to the dating of activity at West Brandon and the other rectilinear and polygonal sites.

At West Brandon, Jobey identified three discrete structural phases, giving a relative chronology for the development of the site (1962, 22-29):-

(1) Occupation evidenced by the small circular hut, succeeded by,

(2) An enclosure consisting of a double palisade around at least one large round house of timber with concentric rings of roof supports. This palisade in turn was replaced by,

(3) A ditch with internal bank, possibly after a short period of desertion.

Jobey noted that "fenced enclosures" are known in the Late Bronze Age but was content to date the occupation of the enclosed homestead to "somewhere in the second or third centuries BC" (1962, 29 and pp. above). The table overleaf gives C14 dates available at the time of writing which give a "contemporaneous" date or a terminus ante quem for palisades in the north of England and southern Scotland.

In addition, food vessel pottery has come from the palisaded hut beneath site XI at Corbridge, Roman fort (Clack and Gosling, 1976,24) and the palisaded site at Tower Knowe, (Jobey, 1973, 55-79), may be circa first

Site	Date	Context	Source
Forest of Ae	1,100 bc	"palisade"	(unpub.) L. Masters, (quoted in Clack & Gosling, 1976, 24).
Fenton Hill	690±100 bc (HAR825)	palisade preceding hill-fort phase	Clack & Gosling, 1976, 23
Burnswark	500±100 bc (GAK2203)	Charcoal from palisade	Cunliffe, 1978, 388
Huckhoe	510±40 bc (GAK1388)	Charcoal from palisade trench	Jobey, 1959, 217-78 and 1968a, 293-5.
Ingram Hill	220±90 bc (I-5316)	Charcoal from settlement site with palisade, beneath bank.	Jobey, 1971, 71-93

Table IX.2 C14 dates from palisaded sites in northern England and southern Scotland

century a.d. in date. A Roman/Post Roman date has been suggested for the palisade at Doon Hill in East Lothian (Clack & Gosling, 1976, 24).

Thus, while Jobey's suggested dates for occupation of the Brandon site fall well within the developing sequence of dates for palisades, the initial construction of the site may easily go back to the Late Bronze Age, if not slightly earlier. Such a possibility has interesting, if now untestable, implications for the dating of the single circular hut at the site.

Dating of the other rectilinear, polygonal and curvilinear enclosures is hampered by the lack of excavation and even where this has been carried out the results have not been helpful (Haselgrove, 1980, 1980a; Haselgrove and Allon, 1981 and forthcoming). However, one important general point should be made here, again to correct a long standing supposed "truism", in northern archaeology. Unfortunately it is Clack and Gosling who again encapsulate this trend of thinking, but they are merely paraphrasing so much that has been said before.

They quite rightly point out that most rectilinear and curvilinear enclosures of the north of England have been recorded north of the Tyne (Clack and Gosling, 1976, 27). However, they go on to say "Both types contained round timber houses (as did hillforts and palisaded sites) prior to the first/early second centuries AD when the material used for house construction changed to stone", and,"few curvilinear settlements in the east have been excavated though it is *probable*", (the writer's italics) "that those with timber houses were occupied before, and those with stone houses, in the course of, the Roman Period" (Clack and Gosling, 1976, 27).

There is, then, an overt assumption here, and one that has pervaded the thinking of many northern fieldworkers, that wooden houses are earlier in date than stone built structures and that all stone built houses inside "native settlements" are Roman in date. The fallacy of this neat solution to what is a broad chronological problem is clearly demonstrated by recent work by Burgess (1981, 7-10; 1982, 4-7) and Coggins and Fairless (1978, 14-15), who have excavated circular stone built huts, both enclosed and unenclosed, in upland areas of the north, only to find that they were of Early Bronze Age date. The lessons of this must be obvious; rather than attach any simplistic, monolithic, chronological or cultural scheme to these differences in building materials it may well be that all we are seeing is an environmentally prescribed response to the problems of house building in which stone or wood was used in an area because stone or wood was the most convenient material available. For this reason the writer has not fallen into what he believes to be the trap of giving "late" dates to circular stone built houses. On the evidence available the stone structures in the valley could range from the Early Bronze Age through to the Roman period and possibly later. (For a detailed discussion of the possibility of Late/Post Roman occupation of "native sites", though in a Cumbrian context, see O'Sullivan, 1980, 128-168).

Turning to the supposed unenclosed sites at Plawsworth (S50) and Holborn Wood (S49), the writer is of the opinion that only excavation will reveal the true nature of these sites. If they are really complexes of man made enclosures and huts, then they are morphologically unlike any of the sites so far identified by Jobey et al., however, the possibility remains that some or all of the features visible are natural phenomena (see above, pp. 287-288).

The chronology of isolated huts is also not without controversy. On the basis of very little excavated data Challis and Harding have hypothesised that these may be of Bronze Age date (1975, 128),(see also Hodgson 1940 and Raistrick and Holmes, 1962, 8, Fig. 2). This may be the case at West Brandon if the speculation outlined above is accepted, but the other isolated hut sites in the valley do not, on present evidence, invite such a comparison with the few excavated examples. Likewise, the lack of certain evidence from the fields and "cultivation terraces" in the study area makes it almost pointless to even try and erect broad chronozones into which they might fit. At best we can say that in some instances they pre-date the eighteenth and nineteenth century enclosure boundaries.

In what has gone before, the writer has tried to present the data which may possibly indicate "later prehistoric settlement" in structural terms, from the valley. At the same time it is hoped that a highly critical stance has been adopted in an attempt to highlight some of the faulty logic and dogmatic statement which has obscured many of the real problems involved in studying prehistoric settlements in the region.

CHAPTER X

PREHISTORIC LAND AND RESOURCE UTILISATION

In the preceding nine chapters of this work the emphasis has been on "fact collection" in the form of documentary, field and museum research. The present chapter is an attempt to integrate some of these collected data into what is admitted at once to be a highly speculative and tentative discussion of prehistoric land use and subsistence patterns in the area.

The attempt is speculative mainly due to the lack of directly relevant pollen and faunal information from the valley, and much of what follows is based on what might be seen as simplistic, functional, analyses of artefactual and site data in conjunction with an intuitive utilisation of floral and faunal evidence from the study area and northern England in general. Where appropriate, ethnographic data has also been used to amplify the available archaeological and environmental evidence. It is hoped that some of the points made here might be tested by future research and that ideas put forward might stimulate other work in the area.

Later Mesolithic

Little can be said about the Earlier Mesolithic or Maglemosian period in the study area (see above Chapter IV, p. 80). As a result, the discussion starts with the Later Mesolithic and the first detailed evidence for the presence of man in the valley. As shown above, some seventy-four sites have been identified on the basis of implement typology. In addition one might also include, for the purposes of this discussion, those sites which show a mixture of typologically Mesolithic and later implement types. Arguments for doing this have been advanced earlier in Chapter IV.

In general terms, the period sits within the Boreal and Atlantic climatic division (Zones VI and VIIa), c. 7000 - 3000 bc. Nationally, the Boreal period saw the beginnings of the main Holocene marine transgression. Climate became warmer and drier than previously and forest cover was becoming dominated by pine, hazel and elm trees. These conditions gave way to the "Climatic Optimum" of the Zone VIIa, Atlantic, period which saw climate become warm, wet and "oceanic"; maximum marine transgression, the formation of the so-called "25' raised beaches" in areas around the coast; and the development of what has come to be known as mixed oak forest consisting mainly of lime, alder, oak and elms (Simmons and Tooley, 1981, Ch. 3 and references therein). The detailed situation in the valley has been discussed in Chapter II above.

In this Boreal/Atlantic forest, naturally occurring glades or clearings might be expected along the margin of the main river and along the banks of some of the larger tributaries, in boggy, wet areas in the lower course of the river, and along the sea coast where salt spray may have retarded and hindered tree growth. Openings may also have occurred in the main body of the forest where trees were blown over or fell over naturally, bringing other trees down with them. All of these clearings and glades were no doubt maintained in some instances by animal browsing and grazing which would have inhibited forest regeneration. The eustatic rise in sea level noted in the period created widely differing habitats far inland in river complexes with long estuaries such as the Tees and those of the southern Lake District (Simmons 1975, 59). However, while land was undoubtedly lost on the Durham coast as a result of this rise in sea level (Trechmann, 1936), the Wear itself has no long estuary, carving as it does a very steep gorge through the Magnesian Limestone at what is now Sunderland. As a result, it is not thought that the flooding effects noted in the Tees estuary would have been as marked, if indeed they had occurred at all (Simmons, pers.comm.).

It is in this environmental context that Mesolithic groups had to make their livings. It is axiomatic now that the Mesolithic economy was of the food collection rather than producing type and that it had an emphasis on hunting and gathering (Clark, 1968). However, in what is now seen as a seminal paper, Clarke has shown that past ideas on the Mesolithic way of life may have been over simplified and quite blatantly biased, with too much emphasis on the role of hunting in the economy to the detriment of our understanding of the part played by plant food (Clarke, 1976, 449-481). Thus it is as well to be aware that, in discussing Mesolithic subsistence strategies, we are dealing with complex, yet integrated, man/plant/animal/inorganic raw material relationships. It is hoped that this point will be fully drawn out below.

In order to speculate about patterns of resource exploitation it is essential that attention is now turned to the available plant/animal resources themselves and that attempts are made to try and examine just what may have been hunted, gathered and fished for, and also the time of the year which would be optimal for the utilisation of various elements of the food/resource supply. In his recent study, Jochim (1976), has suggested that a detailed analysis of animal behaviour patterns and edible plant productivity may allow predictions to be made about the seasonal importance of varying food resources for Mesolithic groups. Using this information he has erected a very interesting model of hunter-gatherer subsistence. Tilley (1979) has also adopted this approach for the Cambridge region and Mellars (1976, 375-399) utilised a variation on this theme in his work on British Mesolithic settlement patterns. Despite some possible problems, noted below, a similar approach will be adopted here.

As was made clear in the opening paragraphs, detailed floral and faunal evidence is lacking for the study area. As a result we must draw on information from other sites in the north in order to discuss available food sources. In doing this we are fortunate to have the detailed information from the waterlogged site at Star Carr

(Clark, 1954; 1972) at our disposal. It has been assumed in what follows that all the animal resources noted at this site in the Early Mesolithic would, with the exception of the elk, (Clark, 1972, 35-36 and 37, Fig. 14; Grigson, 1978, 53-54) be available for exploitation in the later period.

Leaving aside the elk, the main game animals present at the site were red deer, roe deer, aurochs, wild boar and beaver. Small game occurring on the site included birds, fox, badger and pine marten. It is the ecology and ethology of these major game animals which will be discussed in detail below.

Red Deer (Cervus Elephas)

Much has been written about the breeding, aggregation and mobility patterns of red deer, and as a result primarily of the finds from Star Carr, where red deer constituted well over 50% of the chief game animals, the animal may well have assumed a much greater importance than was really the case in any reconstruction of the economic patterns of the Mesolithic.

Grigson, who has been very critical of some of the current thinking on red deer behaviour patterns, characterises red deer as, "basically woodland animals which prefer open woodland and forest verges where undergrowth is maximised" (1978, 53), though Jochim (1976, 101) has shown that there is a wide range of opinion current about red deer preferred habitat. Citing the work of Taylor Page (1962) Grigson further points out that red deer only form large herds in open countryside, usually living in small groupings in woodlands, with the bucks forming a separate, loose, herd for much of the year. As a result, information on deer density per square kilometer is, again, varied (see Jochim, 1976, 102, Table 17 and 105-106) and much of the information derived from modern managed herds in Britain and Europe may have no real relevance to conditions in the Boreal/Atlantic periods.

However, some generalised inferences about behaviour patterns may be derived from modern observations. Rutting usually takes place in September-October with the majority of births occurring in May and June. Jochim has neatly summarised the general picture of group behaviour (1976, 108); "The male groups tend to be largest in late winter and late summer; in spring and just before the rut these groups break up. During the rut they join with, and defend, a number of females and these aggregations may be larger than any exclusive male groups, especially in heavily wooded regions. Female groups are also at a maximum in late winter when they tend to concentrate in low lying areas. During the spring calving period, female groups break up to re-group once the new born calves can travel."

Many workers have commented on the well-defined patterns of movement of red deer between uplands in the summer and lowlands in the winter (Ingebrigsten, 1924; Darling, 1937; Flerov, 1952, 136-7; Lowe, 1966; Clark, 1972, 31-39). As Mellars has shown, (1976, 382) a whole range of factors may be responsible for these observed movements, chief of which seems to be availability of, and access to, food resources. Several writers, Clark and Mellars being the most recent among them, have set great importance by these observed patterns of movement and have incorporated them as integral facets of their reconstructions of Mesolithic economic strategies. Grigson, however, has questioned whether such movements would take place on a large scale in a woodland environment which would have provided red deer with a more regular food supply than other biotopes. She is, though, prepared to accept a more limited summer movement in the Highland Zone to hills above the tree line, in the period in question (Grigson, 1978, 53).

A further point of importance in the context of the present discussion is that of seasonal aggregation and dispersal, touched on briefly above; the,"general tendency for red deer herds to disperse over extensive territories during the summer months and to congregate into much smaller areas during the winter season" (Mellars, 1976, 382). This trait has been noted by all the workers referred to above and Mellars (1975, 53, table 3) gives much comparative data from studies of deer species in the U.S.A. This American work suggests that the territories utilised in the summer months may be up to ten times as large as those occupied in the winter. Mellars also indicates that the areas which are most frequented by deer as winter "yards" are, "stretches of low lying river valleys, which combine the maximum protection from adverse weather conditions with the maximum concentration of accessible food supplies" (1976, 382).

Skeletal and antler remains of red deer have come from numerous locations in Durham County (Howse, 1861, 116-118) and recently finds of antler have come from peat deposits at Bradbury and Morden Carrs (NZ 320 260) and the Sedgefield area (no grid reference) (J. Rackham, pers. comm.). While these finds are not closely dated they do attest to red deer being present in the general area. In the Wear Valley itself antler has come from the bed of the Wear at Claxheugh (Carr, 1859, 121) and the Late Bronze Age, Heathery Burn Hoard, found in the dale, produced red deer antler cut from the animal's skull (Greenwell, 1894, 110). A late Old English poem, quoted by Carr (1859, 121), and dealt with in detail by Hamer (1972, 31-33), refers to "countless beasts" in the "deep dales" of the Wear, and Leland in his "Itinerary" says that, "There resort many redde dere stragelers to the mountains of Weredale" (Toulmin-Smith, 1907, Pt. 1, 71).

Thus, in the Boreal/Atlantic periods, we may safely assume that there were considerable numbers of red deer in the valley. On the evidence set out above, one may expect that the animal would have been at its most easily exploitable as a food resource, and as a source of none food raw materials, in the period of the autumn rut, when male and female come together and the stags attain their heaviest weight, and also in winter, when the animals congregate in "yards" in low lying areas. Autumn and winter would also see red deer antlers fully grown and of optimum use for tool manufacture (Clark, 1972, 23, Fig. 5).

The question of seasonally regulated red deer movement in the study area is an interesting one given the points raised above. (I am indebted to J. Rackham for much useful discussion on this point). At a simple level one might suggest a pattern of movement from the coastal/lower Wear area, which in winter would have provided shelter and winter browse and arguably much needed salt as a result of sea spray effects on the coast, through the middle stretches of the river valley into the dale in the spring and summer. In the dale, full advantage could have been taken of the hyper-forest/forest edge browse, which Simmons has suggested was an important food source (1975, 60) and also of the naturally occurring forest glades which Chambers and Turner have suggested were present in the uplands (see Chapter II, above). Some support for the presence of red deer in the lowlands in winter may come from the deposits noted by Howse at Jarrow docks (NZ 355 650) (1861, 117). Here, several "almost complete" skeletons were found and,"in most instances the antlers were found attached to portions of the skull". Since red deer antlers are fully grown from November through to March, the winter period seems to be the most likely one in which the deer were present on the coast.

Movement at this simple level may well have taken place but given the nature of the forest cover, red deer perambulations may have been much more localised,and on a smaller scale,at certain periods. Rackham (pers. comm.) has suggested that as well as longer distance travel, red deer groups may have been involved in moving from the coast/ Magnesian Limestone area, down into the valley in the lower Wear; that there may have been some northerly and southerly movement out of the valley to areas like Black Hill (NZ 270 596) and Sheddon's Hill (NZ 285 568) near Gateshead (NZ 260 610 centre), which have produced Mesolithic material, or down into the Carr lands of the south-east of the county. Similarly, there may have been intra-regional movement in, for example, the dale, from the sheltered valley to the more green hyper-forest region. The picture would seem to be a complex one, however speculation is important here when we come to try and interpret the function of Mesolithic sites in the study area.

Roe Deer (Capreolus, capreolus L.)

Mixed woodland with glades, clearings and understorey vegetation is the preferred habitat of this species (Tilley, 1979, 23; Prior, 1968; Tegner, 1951). A closed forest environment leads to a decrease in roe deer numbers. Jochim (1976, 102) has shown that they are browsers, feeding mainly on shrubs rather than grasses and he has also argued that,"trends of forest development during the Boreal-Atlantic ... were in conflict. The spreading mixed oak forest, with its nut crops and abundant undergrowth would have favoured roe deer, the gradual closing of the forest on the other hand was unfavourable".

In general the roe deer shows similar dispersal and aggregation patterns to that of red deer, though groupings of the former are usually smaller in size and more stable, ranging from between two to ten individuals (Tilley, 1979, 23, citing work by Grzimek, 1970). In the period April to August, when groupings of females and young occupy discrete territories with a home range of between 7-15 ha, mature males are dispersed. Larger aggregations of males and females occur from August to September during the rutting season, with births taking place in May and June. Winter also sees the high aggregation of roe deer. Antlers are shed in October. On the whole the roe deer is much more timid than the red deer (J. Rackham, pers. comm.).

Only one clearly documented find of roe deer comes from a prehistoric (Atlantic) context in County Durham, and this is from the submerged forest at Hartlepool at the mouth of the Tees (NZ 520 320), (Grigson, 1978, 52, Table III), though it has also been tentatively identified from the Heathery Burn Cave (Inventaria Archaeologia, 1968, GB55, 10, (8)). It would be most unlikely if, given the vegetational conditions of the Boreal/Atlantic periods in the valley, roe deer were not present in some numbers throughout the river's course.

Aurochs (Bos Primigenius)

Because it is now extinct the aurochs is, in many ways, one of the most difficult animals to discuss in the present context. The animal was extremely common in the Early Flandrian period in Britain (Grigson, 1978, 54) and its relative importance as a meat supplier may be seen at Star Carr (Clark, 1972, 27, Fig. 7; Caulfield, 1978) where it was estimated that some eighteen individuals recorded from the site could have produced 26,820 lbs. of meat, making it second only to the red deer as the main meat source.

Possible evidence for aurochs does come from the dale and the general area around the Wear Valley. Howse records a pair of horn cores recovered from the Tyne during the excavations for the Jarrow docks (1861, 119-120), while more recently Johnson and Dunham (1963, 159-161) have recorded a whole series of horn sheaths of both domesticated and wild oxen from the Moor House Nature Reserve and Teesdale and Weardale. Four fragmentary horn sheaths, possibly from aurochs, were found by game keepers in the peat on Burnhope Seat at the head of Weardale. The exact grid reference is unknown but the area is in excess of 2000 ft. O.D. (616 m approximately), while on Ireshopeburn Moor (NY 829 357) at 2150 ft. O.D. (661 m approximately), a single horn sheath was found eroding from a peat hag. Some debate surrounds this piece as Johnson and Dunham identified it as being of bos taurus taurus (domesticated oxen), while Grigson believes it to be bos primigenius (aurochs) (Grigson, 1978, 54). On the basis of pollen from the peat inside the sheath, the horn would fit into a Zone VIIb (Sub Boreal) context, thus making it Neolithic or, at the risk of stretching the point, very Late Mesolithic. The majority of the other finds are of Zone VIIa, (Atlantic) date (Johnson and Dunham, 1963, 159-161).

Rackham has added a further complicating factor to this debate by his analysis of the published descriptions of the horn fragments and of the actual fragments themselves (now in the D.O.E. Environmental Laboratory, Department of Archaeology, Durham University). He has suggested (pers. comm.) that, on the morphological comparison of supposed early and later types, all of the horn sheaths may be from domesticated oxen and that they had sunk down through the peat layers from above to come to rest at the points from which they were recovered. He has discussed at length with the writer, the problems of identifying the two species on the basis of horn sheaths only and as a result the possibility exists that the published identifications of species type may be erroneous. Nevertheless, in the absence of firm proof to the contrary the possibility exists that aurochs were in the dale and the general region in the Later Mesolithic period and that it would have been available to early hunters as a meat and hide source. Indeed, one of Johnson and Dunham's finds on Teeshead (NY 699 340) at 2540 ft. O.D. (781 m approximately) was found in associated with microlithic flint tools (Johnson and Dunham, 1963, 157 and 159).

Grigson suggests that the aurochs was probably highly adaptable and was almost certainly both a browser and a grazer preferring, if anything, because of its large horn span (3-4 feet), open forest conditions (Grigson, 1978, 54). Tilley (1979, 21), citing work by Heptner _et al_. (1966), would tend to agree with Grigson's conclusions and, on analogy with work carried out on the morphologically similar North American Bison, has suggested that the animals may have existed in relatively permanent social groups of four to six individuals with larger seasonal aggregations (Tilley, 1979, 21). On the basis of the proportional representation of aurochs at Star Carr, Price has suggested that we might expect a density of 0-56 animals per sq. km. (Price, 1978, 100), though due to the fact that aurochs is now extinct this must remain speculative.

Grzimek (1970) has suggested that _bos primigenius_ began rutting in early autumn and may have restricted its movements in winter. Thus, if we accept the hypothesis relating to the nature of forest cover in the dale,put forward above (Chapter II,p.45ff),then we might expect aurochs to prosper in the natural gaps in the forest cover of the uplands, on the upper limit of the forest edge and in the hyper-forest region above the tree line (the exact locations from which the recorded horn sheaths came). Using modern figures for length of snow lie as a rough guide we might argue that activity above the tree line, around 2000 ft. O.D. (615 m approximately), may have been seasonally regulated and confined to the warmer late spring and summer months, when the animals may have been taking advantage of the grazing available at these heights.

Another location which may have supported aurochs populations is the terrace areas in the valley. In the uplands these may have been only lightly forested in places, allowing grazing and free access to water. Again, this factor may have been of some importance in the location of Mesolithic settlements in the dale. In the lowlands one may argue that any lightly forested area would have been beneficial to aurochs, which may well have been hunted opportunistically in this section of the valley.

Wild Boar (Sus. Scrofa).

Jochim has indicated that wild boar are mostly associated with closed forests and that their ideal habitat is moist woodlands, especially mixed deciduous forest, with major foods being nut crops, roots, herbs, grasses, worms, larvae and occasional small mammals (Jochim, 1976, 103). Thus in the Wear Valley these animals would have been admirably suited to the Atlantic forest conditions. Indeed, there is well documented evidence for the presence of wild boar in the study area in the later prehistoric and historic periods.

Howse (1861, 112) records the finding of wild boar skulls in alluvial sands in the North Bailey area of Durham City (NZ 274 423), and from wind blown sand at Trow Rocks near North Shields (?NZ 382 667).

While no definite chronology is available for these finds, the Heathery Burn Cave, in the upper dale, provided evidence for the presence of wild boar in the Later Bronze Age period. Greenwell (1894, 92-6 and 110), records the finding of boars tusk at several places in the cave deposits and nine examples are now preserved in the British Museum (Accessions Nos. W.G. 1382, 1390-5, and two unregistered) and at least one is now lost (Britton, 1971, 29). Further evidence comes from the Roman period in the form of the inscription on the Bollihope Common altar (Collingwood and Wright, 1965, I, 345-346, 1041 and references therein), which records the capture of a giant boar, long sought after, in the dale. There are also abundant folk tales from the district relating to out-sized wild boar, e.g. the Brandon "Brawn".

Little published data on density figures for wild boar is available. Fleming (1972, 182) cites figures of 40 to 190 animals per sq. km. from Medieval Essex, and Jochim quotes figures of 3 and 20 per sq. km., derived from preserves in Germany (Jochim, 1976, 103-104). An important point to bear in mind here though is that numbers would probably vary according to the type and density of the forest cover (Anderson, 1961, 43). November and December are the periods when boar enter rut and births occur in February to May. Outside the rutting season, males tend to be solitary, avoiding the female groups, but secondary aggregations, mainly of female and young, do occur in autumn when nuts are ripe, and in winter. Female dispersal is greatest during the spring period, and general mobility is lowest in late winter, rising in summer and arguably at its greatest during the autumn, when boar travel large distances to reach nut concentrations (Jochim, 1976, 110).

In the Wear Valley, the period from October to May, which sees the largest agglomeration of these animals, would probably have been the optimum time for their capture, though again they may well have been hunted opportunistically throughout the year.

Beaver (Castor Fiber)

Beaver may have been present throughout the whole length of the river, though no finds of beaver skeletal remains have been found in the area. Tilley (1979, 24) gives a good summary of the behavioural pattern of this animal. In spring and summer their main source of food is water plants. Winter sees the consumption of bark from all deciduous trees except alder. The winter is also the period which sees the greatest aggregation of beaver, with figures of between 5-12 animals per lodge having been recorded in some areas. The animals are also at their heaviest in this period. Thus the autumn and winter periods, especially in the slower moving, lower reaches of the river, would be the best time to capture beaver, both for their food and for their pelts.

Freshwater Fish

The bones of freshwater fish survive only rarely in the archaeological record, whether this is due simply to differential preservation or to indifferent excavation technique is open to debate. It was possible to find only three published references to freshwater fish bones on specifically English Mesolithic sites; a single centrum of a fish vertebra (species unidentified) was recorded at Thatcham (King, 1962, 360 in Wymer, 1962, 329-361). and pike bones were found at Fox Hole Cave (Bramwell, 1971) and at Dowel Cave (Bramwell, 1959). The lack of specifically identifiable fishing equipment is also a point of note in Britain as a whole, however it should be borne in mind that equipment identified as "hunting gear" in the past, may also have been used to catch fish.

Evidence from the recently excavated sites of Mount Sandel and New Ferry in Ireland (Woodman, 1978, 337-369; Brinkhuizan, 1977, 197), where preservation of secondary freshwater fish (those that migrate to and from the sea) is excellent, shows that rivers undoubtedly provided a plentiful supply of food which Mesolithic groups were quite capable of exploiting. A quick glance at the ethnographic record also shows how important fish resources can be to hunters and gatherers, providing as they do a fairly certain food supply (Weinberg, 1973, 20; Oberg, 1973, 57; Campbell, 1968, 10; Watanabe, 1972, 467-469, 478-479; Turney-High, 1937, 125). Turning to the Wear, the late Old English poem, "Durham", describes the Wear as, "A strongly running river" which is,"enclosed by weirs" and says that,"therein dwell all kinds of fishes in the seething waters" (Hamer, 1972, 33), though Leland, (Toulmin Smith, 1907, Part XI, 129) was of the opinion that the,"Water of Were is alway of trobelyd color", and that,"Little or no fishe is taken but eles (eels) in the upper part of Were. For fishe can not ther well lyve in it". Historically, little support can be found for Leland's remarks.

The river, which has largely recovered now from heavy pollution of earlier this century, has always held good stocks of trout (Salmo trutta fario), eels (Anguilla anguilla) and sea trout (Salmo trutta trutta). Recently salmon (Salmo salar), eliminated from the river earlier this century, have been successfully re-introduced. Arguably a similar range of fish stocks may have been available in the prehistoric period. Work by Wheeler (1977, 1-24) suggests that the majority of coarse fish such as pike (Esox lucius L.) and perch (Perca fluvia talis L.). were probably not present in the Wear in the Mesolithic period. His survey has shown that these fish types would only have been indigenous in rivers draining into what Simmons and Tooley (1981, 116) have called the,"northward extension of the Great European river system", that is those rivers meeting the sea on the southern half of the present east coast of England.

Salmon could have run up the river in spring, summer and autumn though Dr. J. Fish (U.C. Aberystwyth, Department of Zoology, pers. comm.) has suggested that the largest runs would probably have been in summer, with August being the main month of activity. The salmon would be seeking the headwaters and narrow upland tributaries of the river, with their gravel beds, for spawning. Similarly, sea trout begin their runs in June and July and in modern times the best period for taking these fish in the river's upper reaches is the time from August to October.

As with the salmon, these fish also seek shallow gravel bedded streams in which to spawn.

One major constraint on the movement of these fish is water level in the river. They can only move upstream if there is a good head of water and most movement takes place under flood conditions. If for any reason the water level is not high enough then both species would be confined to the deep pools of the lower reaches of the river.

If the brown trout was available for exploitation in the Mesolithic period then it could have been caught in all stretches of the river and its tributaries. These fish are autumn/early spring spawners, and again would be at their best as a food resource in the mid to late summer periods. Eels on the other hand spawn later and would be at their peak in all stretches of the river in the late autumn/winter periods, though again, if present they could have been caught all year round.

It will be argued below that fish may well have been as important as larger mammals as a food resource in the valley. Their seasonal availability fits in well with the proposed seasonality models for resource exploitation put forward below, and the location of many flint scatter sites close to the main river and its tributaries, especially in the Finchale area of the middle Wear and the Eastgate/ Stanhope stretch of the upper dale,would make these sites ideal locations from which to fish, hunt and gather.

Wild Fowl and Sea Birds

We may expect that the Wear would have carried a sizeable wild fowl population, with the lower, slower moving stretches being important for ducks, geese and other water birds. These may well have been hunted either seasonally or on an opportunistic basis all year round. To the south east of the main valley, the "Carr" lands, the peat and lacustrinal areas, would also have provided an important habitat for wild fowl. Similarly on the coast and around the mouth of the Wear, the sea bird population may also have been very large. Today, for example, the cliffs at Whitburn and Marsden Rocks are dominated by large gull colonies all year round. While it may be argued that numbers here have been boosted by the close proximity of domestic refuse tips from large conurbations such as Sunderland, which provide a rich, ready,food source for the birds, gulls may well have occupied the cliffs in a similar way in the Mesolithic, and adult birds, eggs and young chicks could all have been variously used as a food resource. Winter would have seen an influx of seabirds from further north, over wintering in the district and the sandy beaches and the area around the Wear mouth would probably have provided a large wader population. Massive bird aggregations from areas like Seal Sands and Teesmouth,which could have been within the striking distance of groups occupying the coastal area,could also have been exploited. Obviously these could have provided a year round resource but practicalities such as weather conditions may have limited the optimal season for exploitation to spring and summer periods.

Marine Mollusca and Sea Fish

Marine mollusca could have provided a fairly stable addition to the Mesolithic diet. The various sections of the coast could be expected to provide varied species, for example rocky areas would produce limpets (Patella) and periwinkles (Littorina littorea), sand/ mud areas, cockles (Cardium sp.) and mussel (Mytilus edulis) beds may have been expected in sheltered, level areas of sand and/or mud with some rocks (J. Rackham, pers. comm.). Work in Scotland (Coles 1971; Mellars, 1978, 371-396) has shown just how significant a contribution shell fish may have made to the Mesolithic economy. Edible crab (Cancer pagurus) may also have been exploited in some areas and as it migrates to deep water in winter, returning to the shallows in February (Coles, 1971, 352), it may have been readily available from spring through to the end of autumn.

Evans has suggested (1975, 106) that shellfish may have been eaten "during the exploitation of a coastal site for raw materials, during winter when plant food was scarce and perhaps during the red deer breeding season". In addition he has also pointed out that, "they are as nourishing as a meat dish if eked out by vegetable food, they contain large quantities of glycogen and need not be added to by other animal flesh. They also contain the valuable Vitamin A. Moreover their abundance per unit area is greater than that of any other food animal" (1975, 105).

Turning to sea fish, problems of preservation and recovery, similar to those noted for fresh water species, should be noted. However, the Mesolithic site at Morton, Fife (Coles, 1971, 284-286), which occupied the contemporary North Sea coastline,may be instructive as to some of the probable range of fishes that might have been caught off the North Sea coast of Durham. Coles recovered cod (*Gadus morhua*), haddock (*Gadus aeglefinus*), turbot (*Scophthalmus maximus*), sturgeon (*Acipenser sturio*), salmon and sea trout (1971, 351),though by far the most important species was the cod, with many of the bones coming from large fish (1971, 352).

Graham (1924) has discussed the annual migratory cycle of the cod in detail, and in general they appear in inshore waters in the autumn, being most common here from September to December. Coles suggests (1971, 353) that the presence of large cod bones may indicate the use of boats in their capture, a point which should not be overlooked in our present discussion, and he also discusses the possible seasonal implications of the presence of sturgeon bone in the fish bone assemblage (Coles, 1971, 352).

Plant Food

Lee and Devore, in the "Man the Hunter" volume, have shown that many nodern "hunters" in temperate and tropical latitudes utilise other sources than meat for most of their food needs (1968, 7 and 42). Plants invariably play a large part in the dietary schedules of present day hunters and gatherers, with hunted meat making up between 20% and 40% of dietary requirements. Lee, (1968, 43, Table 6), has shown quite clearly that today it is only in areas of arctic and sub-arctic conditions where "hunting" and "meat" are the main dietary components.

It was partly as a result of this research that Clarke was able to put forward his highly critical re-appraisal of the economic basis of the European Mesolithic, which led him to suggest that it was probable that the "hunters" of Temperate Europe had a higher reliance on plant foods than had hitherto been believed (Clarke, 1976). He believed (1976, 450-451), "that in these latitudes, (35°-55°N), gathered vegetable foods would have provided 60%-80% of the diet by weight and meat from all sources ... only 30%-40% by weight in toto".

Archaeologically this is very difficult to prove, given the problems of preservation of plant remains, but it seems likely that we should expect plant foods to take on a much greater importance as the Pre-Boreal, Boreal and Atlantic periods developed and forest ecosystems became more diversified. Clarke has suggested (1976, 464, Table 1) that Boreal mixed deciduous and coniferous forest may have contained between 200 and 350 edible species with a net primary productivity of 400-2000 gms/sq.m/yr., while in the Atlantic period, with the full development of deciduous forest, he suggests that edible species would have increased to 250-400 with a nett primary productivity of 600-3000 gms/sq.m/yr. He further argues (1976, 464, Table 2) that, "swamps, marshes, deltas, estuaries and lagoons", would have been areas producing the highest numbers of edible plants, closely followed by, "Littoral Zones, alluvial plains, eutrophic lakes, river and stream valleys." All these latter regions would have been well within the range of Mesolithic groups active in the Wear Valley area. Seen in this light, the concentration of flint scatters on the terrace systems of the river may well take on added importance.

The Atlantic forest cover in the valley may well have been particularly prolific in edible plant species. Tansley (1965, 276) has characterised contemporary deciduous forests as possessing four discrete zones:

(i) a tree layer

(ii) a shrub layer

(iii) a herb or field layer

(iv) a ground layer,

and the mixed deciduous forest of the Boreal/Atlantic period should not have been too different. In each of these layers one or more species is dominant and,as we have seen above,the main tree species in the period were lime, alder, oak and elm. Alder was dominant in damp,low lying,areas and some pine may have been growing preferentially on the limestone in the lower reaches of the valley (Chapter II

Subsidiary trees make up the shrub layer, and it might be expected that these became prolific on the forest edge and in glades and openings. Tilley (1979, 16), has summarised the main species of the deciduous forest shrub layer very neatly, "hazel (usually dominant) with crab apples, wild cherry, juniper, hawthorn, blackthorn, blackberry and rowan, all providing valuable sources of fruits, nuts and berries, many of which would have had considerable potential for storage if processed in the correct manner". All of these species were probably available in the Wear Valley and the predominance of hazel in the uplands has been shown by Chambers (1976, 89-91). That it was collected by Mesolithic groups in the lowlands of Durham, at least, is shown by their presence in large quantity at the site of Filpoke Beacon (NZ 475 375) (Coupland, 1948).

The field layer may have been dominated by bracken and/or the myriad number of herbs and flowers, many of which are recorded in the available pollen diagrams (Chambers, 1976), and which would have bloomed prolifically in the spring and could have provided easily collectable, edible, roots and tubers.

Much of the produce of the shrub and field layer of the forest could have been stored for use in lean periods, such as the winter. Hazel nuts and apples are both capable of being stored for long periods and roots and tubers could also have been dug for in the winter season.

Finally, among the thick leaf litter of the forest, we might expect to find a whole range of grasses, lichens, mosses and fungi, making up the ground layer. Clark (1952, 60-61 and 1972, 25-26, Table 1) has shown the potential, as food sources, of many plants which today would be overlooked, and doubtless the "damp" deciduous forest of the valley (Tansley, 1965, 271-2 and 286-7), with its rich understorey vegetation, could have provided a seasonally abundant and varying, harvest of plant food.

Mesolithic Man's Effect on the Forest Cover

This seems an appropriate place to enter into a brief discussion of this topic. The limited evidence for this phenomenon from Teesdale has already been discussed and, although no direct evidence comes from the study area, it may be suggested, on the basis of the growing body of supporting data in Britain, that Mesolithic environmental manipulation in the Wear Valley was at least possible. Since discussions in the late 1960's by Simmons (1969) and the early 1970's by A.G. Smith (1970) it has been increasingly recognised that, using mainly fire as a tool, Mesolithic groups could have had a significant role in the instigation of open land conditions, especially in the uplands. Indeed, work by Jacobi et al. (1976), in the Southern Pennines, has suggested that in some cases upland areas were repeatedly burned off in the Mesolithic period, so much so that tree cover never fully regenerated.

Mellars in particular (1975; 1976a) has stressed the importance of the burning off of forest cover for the Mesolithic economy and Mellars and Reinhart (1978, 260-263), using ethnographic parallels have discussed the possible reasons behind Mesolithic clearance. They stress six major benefits of such activities (Mellars and Reinhart, 1978, 260):

(1) An increase in the mobility of human groups which cut the time and energy spent in the food quest.

(2) An improvement in hunting conditions caused by the reduction of cover available to hunted animals. This may also have allowed the use of more efficient forms of group hunting strategies.

(3) An increase in animal numbers and population density caused by,"improvements in both the total quantity and nutritional quality of available forage resources".

(4) An increase in: the growth rate of young animals, the maximum size attained by mature animals and the reproductive capacity of females.

(5) A stronger human control over the distribution of animals which would allow a more accurate prediction of patterns of animal movement.

(6) An increase in the yield of some plant food sources. Plants such as hazel have been skilfully manipulated and cropped as a result of burning to encourage growth and fruiting.

Clearance,it is argued,would increase the overall resource productivity of the cleared area and would have been of immense value to Mesolithic groups.

Mellars (1976a)deals in great detail with the relationship between fire, animals and man, and the implications for the development of processes such as herding are great, especially in the light of Simmons and Dimbleby's contribution on the possible use of ivy as a Mesolithic fodder crop (Simmons and Dimbleby, 1974).

Here, though, is not the place to rehearse in detail, arguments and theories already in print. Suffice it to say that Mesolithic man would have reaped many benefits from selected forest clearance. It may well have been used as a useful hunting and gathering tool throughout the Wear Valley. Further palaeoenvironmental research, especially in the dale area, may reveal evidence for localised Mesolithic environmental manipulation.

Having now gone through what may have been the main sources of animal and plant food available to Mesolithic groups in the study area, one cautionary note should be sounded. The discussion above deals only with what may have been eaten/utilised by the study area's hunters and gatherers, not what was definitely consumed. Different groups of people may well perceive available resources differently and cultural selectivity may have played a large part in determining dietary structure and requirements. One example from the ethnographic record serves to illustrate this point. Lee (1968, 35) has shown that while the !Kung San have some eighty-five different edible plant species available to them, about 90% of their vegetable diet by weight is drawn from only twenty-three species. 75% of the listed edible plant species, (Lee, 1968, 34, Table 3),provides only 10% of the food value. "In their meat eating habits, the Bushmen show a similar selectivity. Of 223 local species of animal known and named by the Bushmen, 54 species are classified as edible and of these only 17 species were hunted on a regular basis. Only a handful of the dozens of edible species of small mammals, birds, reptiles and insects that occur locally are regarded as food" (Lee, 1968, 35).

Similar selectivity may well have occurred in the Mesolithic period and while it is difficult, if not impossible, to prove archaeologically the point should be borne in mind in the discussion below. Table X.1 is a diagramatic attempt to bring together the information set out in detail above and to indicate, with reference to the study area, the writer's interpretation of the season and possible location in which each potential, major food resource could have been optimally and most easily exploited. The discussion above, and the table has clearly

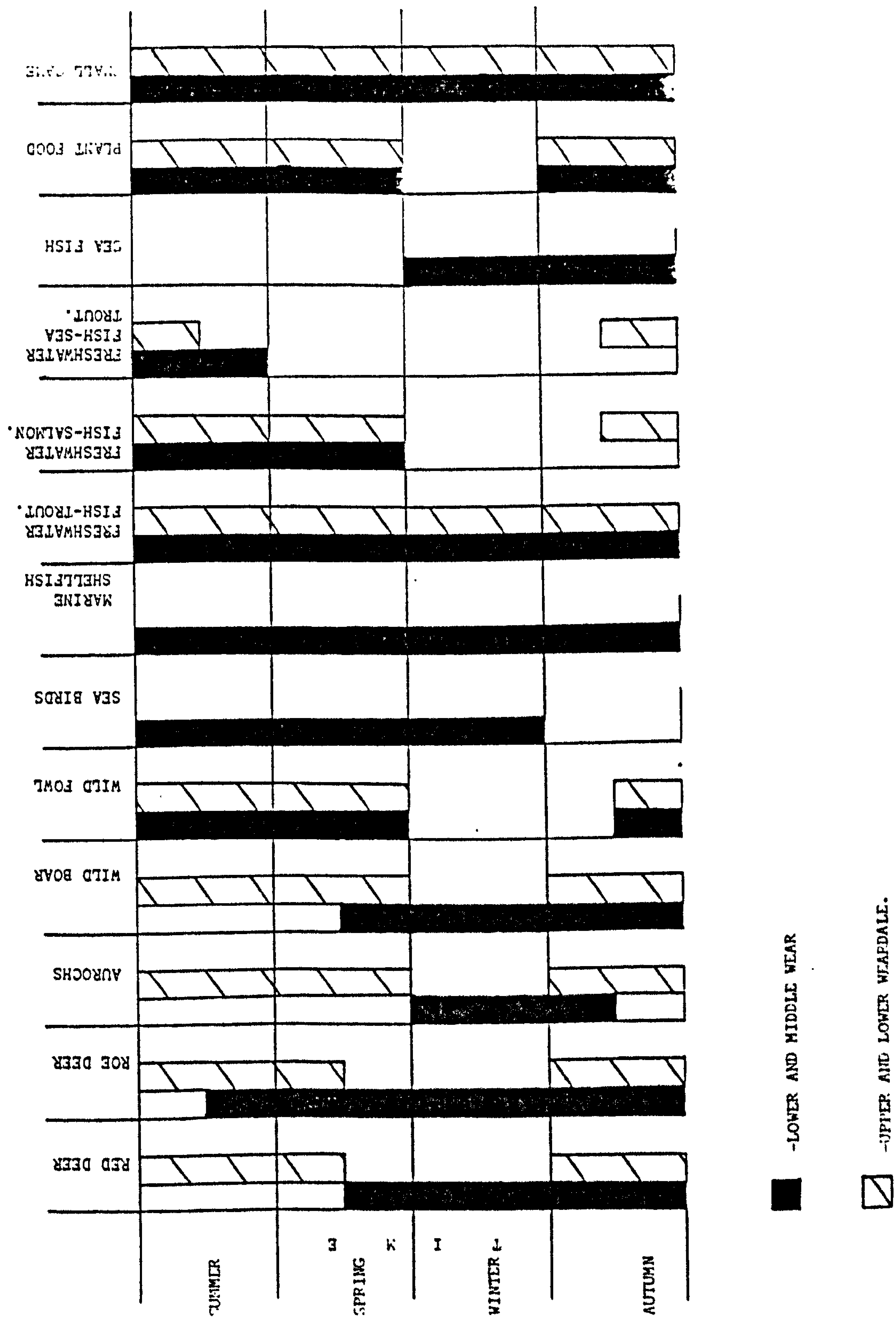

Table X.1 Hypothesised schedule of seasonal resource availability in the study area.

shown that ease of availability of food resources would vary throughout the valley on a seasonal basis, with uplands and lowlands being of varied and shifting importance throughout the year. The ethnographic and anthropological record shows that the majority of human groups living a hunting, gathering and fishing lifestyle might be expected to move from area to area, or within areas, to take advantage of seasonal variation of food supplies (see for example Thomson's work on the Wik Monkan, (1939); Watanabe on the Ainu of Japan, (1968); Lee's work on the !Kung San, (1968; 1972; 1972a; 1979) and Jochim's excellent review (1976, 11-79).

Nor is this seasonally prescribed movement a random one, as in most instances, as Thomson and Jochim clearly show, population shift is the product of planning, based on,"explicit knowledge of tribal lore concerning the breeding and ripening cycles of animals and plants" (Clark, 1972, 21). Band or group size also varies in many instances on a seasonal basis (Mellars, 1976, 385), with fusion and fission taking place at discrete times of the year. Populations seem to aggregate during periods of food scarcity when the need for sharing is greatest. In arid environments large human groupings occur in the dry season, which sees a shortage of food (Lee, 1968, 31; Woodburn, 1968, 104-106) and in more northerly latitudes, as Watanabe's work has shown, multiple group/family settlement occurs in the winter period (Watanabe, 1968, 69-70).

Within this round of seasonal movement and human aggregation and dispersal, humans still need to extract a living from the environment. It is suggested here, again on evidence from the kind of ethnographic observations noted above, that human groups might employ a functional hierarchy of major and ancillary sites, which allow them to crop resources in an ordered way as and when they are needed. It is further suggested that this functional hierarchy might well manifest itself archaeologically in terms of variations in the tool assemblages, in this instance lithic tools, available from each site. An attempt will now be made to analyse the assemblages from Mesolithic and Mixed sites in functional terms, that is to try and assess the activities carried out at the different locations from the surviving archaeological material on the basis of the range, number and type of artefacts recovered from individual sites. However, before this is done, some background to the development of this approach and to some of its assumptions is essential.

Many workers have attempted this kind of analysis for material of varying periods and in various locations. Possibly the best known contributions are those of Binford and Binford (1966; 1968) on Palaeolithic material and Howell and Clark <u>et al</u>. on Acheulian material from sites in South Africa (Howell <u>et al</u>., 1962; Howell and Clark, 1963; Isaac, 1972). However, the technique has been adopted closer to home with interesting results. Simmons has utilised a functional approach for sites in the uplands of northern Britain and Wales (1975, 1980) and Jacobi (1978, 307-324),Spratt <u>et al</u>. (1976) and Clark (1972) have all analysed sites and implements in discrete regions in functional terms. Possibly the best synthetical overview of the implications of this kind of work for Britain is contained in Mellars 1976 paper "Settlement Patterns and Industrial Variability in the British Mesolithic".

On the basis of variation in tool form and site size, the Binfords isolated two major classes of hunter/gatherer site:

(a) <u>Base Camps</u>: at which what they termed "maintenance activities" took place, "fundamental, general purpose, routine activities of daily life, i.e. food producing and preparation, manufacture of tools and the repair of tools and construction work for shelter and protection".

(b) <u>Extraction Camps</u>: more special purpose localities such as hunting camps, kill sites, gathering stations etc. that reflect the acquisition of specific environmental resources.

Fitzhugh (1972, 137) has expanded this concept from his observations in Labrador, based on anthropological and archaeological data, and he erects seven categories of site:

(a) <u>A gathering site</u> (i.e. meeting) used one to two times per year, at particular times of the year, by a large number of people.

(b) <u>A base camp</u>. A smaller site than (a) but which is a central focus during a portion of a particular season.

(c) <u>An exploitation camp: intensive</u>. Occupied by a single family over a variety of time periods in order to garner a variety of resources and thus exhibiting a wide assemblage of tools and a lot of debris.

(d) <u>An exploitation camp: light</u>. Occupied briefly by a family, the small amount of debris and narrow range of tools suggest a narrow range of activities.

(e) <u>A bivouac</u>. Few structures and tools found.

(f) <u>A specialised camp: internal</u>. Specialised activity camps within band territory e.g. quarries, chipping stations, religious sites. These are recognised by functionally specialised remains or structures.

(g) <u>A specialised camp: external</u>. Specialised activity sites outside of band territory. These tend to be trading or procurement sites.

Price (1978) has further developed the theme in his survey of Mesolithic settlement systems in the Netherlands. Taking into account artefact density, site size, number of features, counts for atrefact type groups, total amount of waste material and spatial patterning of artefacts, his detailed analysis of material from twenty-five sites (1978, 89-91) has led to the identification of five site categories similar to Fitzhugh's classification (1978, 94-95).

Mellars, using the limited range of "essential" tool types (1976, 386) from forty-eight British sites has shown a striking degree of variation in the relative proportions of different tool forms and waste products encountered at different sites. He notes an "obvious" division of the assemblages into three groups; Type A, microlith dominated assemblages, Type B "balanced" assemblages with approximately equal numbers of microliths and scrapers and Type C, scraper dominated assemblages. These he has interpreted in some detail along similar lines to those outlined above and at the risk of over-simplifying his arguments, Type A assemblages were seen as indicating an emphasis on subsistence activities (in Mellar's terms, hunting), Type B were seen as suggesting an emphasis not only on hunting activities but also on a variety of more domestically orientated tasks. Type C assemblages were thought to indicate the presence of a limited and specialised range of activities on sites. Linked with locational data and seasonal factors which may be thought to influence economic activities and settlement patterns, Mellars used the functional analysis of lithic assemblages to produce an interesting and stimulating approach to hunter/gatherer subsistence and settlement.

However, the acceptance of the artefactual approach to site function depends on the acceptance of a number of underlying assumptions. For example, it must be assumed that the assemblages of artefacts under consideration is a complete, or at least a representative sample, of the total amount of material from each site. This brings us back to problems raised in Chapter I (pp.28-36) and it was also a problem which Mellars took into account (1976, 385-386). Differential preservation of organic and inorganic materials may also produce imbalance in the data, possibly leading to the omission from our assessment, of whole ranges of organic implements and tools of which no trace survives. Problems may also arise through a lack of consistency in the identification of tool types by different workers on different sites. It was precisely this problem which led Mellars to restrict the range of tools he examined (1976, 36).

Another basic assumption is that the specific function imputed, by the archaeologist,to the artefacts under discussion is realistic and correct. Complications may occur here, for example, in the interpretation of microliths. Implicit in most analyses is the assumption that these implements form the armatures of composite hunting tools (arrowheads, spearheads etc.). However, alternative interpretations may be possible c.f. Clarke's discussion (1976, 449-483) where a whole new range of composite tools constructed from microliths and linked with the preparation of vegetable foods, is illustrated.

Finally, there is a tacit assumption implied in the technique, that is linked with chronological aspects of the period. The Mesolithic, as traditionally defined, stretches over some 4000 years and the range of closely dated sites is not great. What must be accepted, and what Mellars and others do seem to accept, is that the behavioural/subsistence patterns of hunters and gatherers never changed over several millennia. Some support for this assumption may be gained from the conservatism exhibited by the range of tools found on Mesolithic sites, especially in the Later Mesolithic period (Jacobi, 1976, IV, passim).

The Technique Applied

An attempt will now be made to analyse the Mesolithic sites of the study area along the lines outlined by Mellars et al. above. Included in this analysis are those Mixed sites which contain Mesolithic artefacts and about which there is debate over chronology (see above). Table X.2 shows a breakdown of the various categories into which the lithic material has been divided. As all the extant material has been analysed anew by one worker, it was felt that problems of consistency of identification had been overcome. As a result, it was decided to take into account as broad a range of categories as possible in order to render assessments of site function more meaningful.

Working on the assumption that "extraction camps" will have a limited lithic range and that "base camps" will exhibit a wider spectrum of the tool forms mirroring the wide range of tasks carried out at them, the following listing can be arrived at (Table X.3). Sites recorded in the literature solely by reference to "flakes and chips" have been excluded.

	Cores	Scrapers	Arrowheads	Microliths	Denticulated Blades/Saws	Burins/Gravers	Borers/Awls	Notched Flakes/ Blades	Microburins	Unworked Pebbles	Misc. Retouched/ Utilised Flakes and Blades	Hammerstones	Waste Material	Retouched Knives	Tanged Implements
Allerton Burn (F1)	-	1	-	-	1	-	-	-	-	-	-	-	3	-	-
Allotment Plantation (F2)	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Ashes Quarry (F3)	-	-	-	-	-	-	-	-	-	-	1	-	2	-	-
Bell's Quarry (F4)	5	8	-	7	3	-	2	1	1	1	16	1	60	-	-
Billing Shield (F5)	9	2	-	-	6	1	-	2	-	-	27	2	180	2	-
Binchester (F119)	14	2	-	-	1	-	-	2	-	6	30	2	173	1	-
Cambokeels (F7)	1	3	-	1	-	-	-	-	-	-	2	-	9	-	-
Cragside (F8)	-	-	-	1	1	-	1	1	1	-	8	-	35	-	1
Eastfield, Eastgate (F9)	3	1	1	1	1	1	1	1	1	1	1	1	1	-	-
Eastgate (Pipeline) (F10)	1	-	-	1	-	-	-	-	-	-	-	1	7	-	-
Eastgate House (F11)	3	5	-	-	-	-	-	-	-	-	3	1	32	-	-
Finchale Banks (F12)	?3	-	-	-	-	-	-	-	-	-	2	-	?6	1	-
Finchale, Harbour House (F13)	?4	-	-	-	-	-	-	-	-	-	-	-	MANY	-	-
Finchale Nab (East) (F14)	7	-	-	-	-	-	-	-	-	-	5	-	-	-	-
Finchale Nab (Mallygill) (F122)	34	-	2	?1	7	2	3	1	-	7	27	2	46	-	-
Finchale, Union Hall (F16)	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-
Frankland Bend (F17)	4	2	-	1	-	-	-	-	-	-	13	-	3	-	-
Frankland Park Farm (F18)	?	?1	?1	-	-	-	-	-	-	-	-	-	-	?	-
Frankland Wood (F19)	11	1	-	-	1	1	-	1	-	2	7	-	62	-	-
Great Lumley (F21)	-	1	-	-	-	-	-	-	-	-	-	-	SEVERAL	1	-
Greenfoot, East Field (F22)	2	-	-	-	-	-	-	-	-	-	-	-	5	-	-
Greenfoot, West Field (F23)	2	-	-	-	-	-	-	-	-	-	1	-	8	-	-
Grindon Kairn (F24)	1	-	-	-	-	-	-	-	?1	-	2	-	-	1	-

Table X.2 Categories of lithic material from selected Mesolithic and Mixed sites in the study area

	Cores	Scrapers	Arrowheads	Microliths	Denticulated Blades/Saws	Burins/Gravers	Borers/Awls	Notched Flakes/ Blades	Microburins	Unworked Pebbles	Misc. Retouched/ Utilised Flakes and Blades	Hammerstones	Waste Material	Retouched Knives	Tanged Implements
Holm House Eastgate (F29)	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–
Howel John East Field (F30)	2	1	–	1	–	–	–	–	1	–	–	–	27	–	–
Kepier High Grange (F32)	–	–	–	–	–	–	1	–	–	–	–		2	–	–
Killhope Burn (F33)	2	–	–	–	–	–	–	–	–	–	–	–	?12	–	–
Mary Knotts Quarry (F37)	–	1	–	–	–	–	–	–	–	–	2	–	5	–	–
Monkwearmouth (F38)	?3	–	–	–	–	–	–	–	–	–	?20	?1	?131	–	–
Northgate (F40)	1	–	–	?2	–	–	–	–	–	–	9	–	12	1	–
Old Durham (F45)	18	1	–	?5	–	1	1	1	2	17	22	–	447	–	–
Pittington (F46)	?	?1	?	?	?	?	?	?	?	?	?7	?	?	?	?
Quarry Hill (F49)	2	1	–	–	1	–	–	1	1	1	15	–	54	–	–
Ryhope (F50)	?50	?34	–	?2	?	–	–	–	?1	?7	UNCLEAR	–	?203	–	–
Ryhope (F51)	–	?2	–	?1	–	–	–	–	?2	–	?9	–	–	–	–
Ryhope Dene (F52)	?	?	?	–	–	–	–	–	–	–	?2	–	?	–	–
Shittlehope Burn (Pipeline) (F53)	–	1	–	–	–	–	–	–	–	–	1	–	–	–	–
Shittlehope Burn (F54)	–	–	–	–	–	–	–	–	–	–	–	–	5	–	–
Shittlehope Burn, Rifle Range (F55)	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–
Shittlehopeside (F56)	1	?1	–	–	–	–	–	–	–	–	?1	–	?15	–	–
Stanhope Burn (Pipeline) (F58)	1	–	–	–	–	–	–	–	–	–	–	–	1	–	–
Sunniside Grange (F60)	3	–	–	–	–	–	1	–	–	–	7	–	33	–	–
Unthank Pasture, Thimbleby Hill (F62)	2	–	–	–	–	–	–	–	–	–	4	–	39	–	–
Wager Head (F63)	6	?3	–	?8	–	–	–	–	–	–	?180	–	?	–	–
Washington (F64)	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–
Wellhope Fell (F65)	–	3	–	1	–	1	4	1	1	1	21	1	114	–	–
Whitburn (F67)	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?

Table X.2 Cont.

	Cores	Scrapers	Arrowheads	Microliths	Denticulated Blades/Saws	Burins/Gravers	Borers/Awls	Notched Flakes/ Blades	Microburins	Unworked Pebbles	Misc. Retouched/ Utilised Flakes and Blades	Hammerstones	Waste Material	Retouched Knives	Tanged Implements
Evenwood (F121)	1	3	4	1	5	-	-	3	-	-	14	-	3	3	-
Flinty Field (F123)	1	2	?2	3	1	-	1	-	-	-	16	1	10	-	-
Greenhead Plantation (F124)	4	-	1	1	-	-	2	-	-	-	1	-	20	-	-
Howel John, West Field (F125)	31	16	2	6	3	-	2	10	1	-	37	1	420	-	-
Police Field, Eastgate (F126)	53	10	2	9	2	1	5	6	4	3	100	-	830	-	-
Rookhope Chimney, Redburn Common (F127)	2	-	4	-	-	-	-	-	-	-	10	-	29	1	-
Whitfield Brow (F128)	-	3	1	-	-	-	-	-	-	-	5	-	12	-	-

Table X.2 Cont.

Group 1 - Extraction Camps	Group 2 - Base Camps
Allerton Burn (F1)	Bell's Quarry (F4)
Allotment Plantation (F2)	Billing Shield (F5)
Ashes Quarry (F3)	Binchester (F119)
Cambokeels (F7)	Cragside (F8)
Eastfield, White House, Eastgate (F9)	Eastgate House (F11)
Eastgate (Pipeline) (F10)	Evenwood (F121)
Finchale Banks (F12)	Finchale Nab, Mallygill (F122)
Finchale Harbour House (F13)	Finchale, Priory Farm (F15)
Finchale Nab (East) (F14)	Flinty Field (F123)
Finchale, Union Hall (F16)	Frankland Wood (F19)
Frankland Bend (F17)	Howel John East Field (F30)
Frankland Park Farm (F18)	Howel John West Field (F125)
Great Lumley (F21)	Monkwearmouth (F38)
Greenfoot, East Field (F22)	Old Durham (F45)
Greenfoot, West Field (F23)	Police Field Eastgate (F126)
Greenhead Plantation (F124)	Wager Head (F63)
Grindon Kaun (F24)	Wellhope Fell (F65)
Holm Hill, Eastgate (F26)	
Holm Hill, Eastgate (F27)	
Holm Hill, Eastgate (F28)	
Holm House (F29)	
Kepier High Grange (F32)	
Killhope Burn (F33)	
Mary Knotts Quarry (F37)	
Northgate (F40)	
Pittington (F46)	
Quarry Hill (F49)	
Rookhope Chimney (F127)	
Ryhope (F50)	
Ryhope (F51)	
Ryhope Dene (F52)	
Shittlehope Burn (Pipeline) (F53)	
Shittlehope Burn (F54)	
Shittlehope Burn Rifle Range (F55)	
Shittlehopeside (F56)	
Stanhope Burn (Pipeline) (F58)	
Sunniside Grange (F60)	
Unthank Pasture, Thimbleby Hill (F62)	
Washington (F64)	
Whitburn (F67)	
Whitfield Brow (F128)	

Table X.3 List of possible Mesolithic "base" and "extraction" camps in the study area

The range of sites located in the upper and lower dale area might well represent the spring/summer/early autumn camps of groups who utilised the lower reaches of the valley and the coastal area in the late autumn to winter periods. At its simplest we might suggest, as with the deer, that there were movements from the dale to the lower Wear/coastal area in winter and vice versa in summer, with the middle Wear Valley being passed through twice on the annual round. Human movement, then, occurred to take full advantage of seasonal, optimal, availability of food resources throughout the valley as set out in the discussion and Table X.1 above. In addition there may have been what Jochim has termed intra-seasonal movement to improve things like hunting and fishing potential (Jochim, 1976, 47).

In order to advance this discussion further, attention must now be paid to actual site location. Jochim has suggested that the location of settlements among hunters and gatherers is the result of a set of decisions which concerns the spatial arrangement of the population in order to meet a number of defined goals (1976, 47). He summarises the main goals, derived from ethnographic observation as follows:

(1) Proximity to economic resources.

(2) Shelter and protection from the elements.

(3) View for observation of game and strangers (Jochim, 1976, 50).

In the context of Boreal/Atlantic forest cover, the writer would query the necessary importance of Jochim's third goal, but, while Orme has recently argued about the overriding importance of economics in settlement patterns, pointing out that cultural factors may motivate groups to place their settlements in certain areas (1981, 133-134), the importance of goals one and two has been accepted by the writer.

With regard to shelter and protection from the elements, all the "base camps" around Eastgate are favourably placed on the river terrace system and lower slopes in this stretch of the river, and may well have occupied natural or man made clearings in the tree cover. The Bell's Quarry and Wager Head sites (F4 and F63), while well above 1000 ft. O.D. (307 m approximately), are also fairly sheltered, the former being on the eastern slope of a small burn and the latter at the head of a small stream, running into the Bollihope Burn. Similarly, the Evenwood site is in the valley of the Gaunless, a tributary of the Wear. The group of sites from Binchester down river to Finchale (F45, F19, F15 and F122) are all again in sheltered terrace locations, with the sites around Finchale Nab itself being excellently placed for protection against the elements. The Monkwearmouth site (F38) located on gravel deposits above the river is also in a sheltered location, being protected behind the steep cliffs of the river's mouth.

This brings us to Jochim's primary reason for settlement location, proximity to economic resources, a point which is arguably best examined in a "territorial" framework, integrating our ecological and ethnological data with the archaeology and the overall concept of "seasonality".

Much has been written about this approach to site function and settlement location (Vita Finzi and Higgs, 1970; Higgs and Vita Finzi, 1972; Jarman, 1972 and Vita Finzi, 1978). Utilising the ideas and concepts in these works in a generalised way, it is suggested that the "base camps" served as focal points in the landscape for human activity and were located for the optimal extraction of resources from discrete "exploitation territories". Vita Finzi and Higgs, (1970, 7) describe an exploitation territory as,"the territory surrounding a site which is exploited habitually by the inhabitants of the site". The "extraction camps" are seen as being ancillary to the "base camps", aiding the cropping of available resources in the "territory".

It remains then to try and examine site location with respect to the "territories" that may have been exploited and in doing this some very interesting points emerge. Using the observations of Higgs and Vita Finzi relating to mobile economies (1972, 31), 10 km radius, hypothetical "territorial boundaries" have been drawn around selected base camps. Bell's Quarry (NY 851 421), (F 4) (Fig.X.1), was chosen for the head of the dale, Police Field (NY 954 386), (F126) (Fig.X.2) to show the potential territorial range of the sites around Eastgate, Wager Head (NZ 012 337), (F63) (Fig.X.3) because of its upland location, Evenwood (NZ 155 250), (F121) (Fig.X.4) for its location between the Wear and the Tees, Binchester (NZ 210 315), (F119) (Fig.X.5) and Finchale Nab, (NZ 297 473) (F122) (Fig.X.6) because of their respective locations in the middle Wear (the Nab site was seen as representative of the sites around Finchale) and Monkwearmouth (NZ 402 585), (F38) (Fig.X.7), because of its location in the lower Wear. 10 kms represents the idealised maximum distance that can be walked in two hours from each site. A full discussion of the reasoning behind this is contained in Vita Finzi and Higgs (1972).

Obviously, on the basis topography and varying thickness of forest cover etc. this distance may be modified, it may well be for instance that sites located on the river terraces exploited river margins more intensively than elsewhere, but it is argued that the "site exploitation territory" of each site will lie somewhere within each 10 km radius circle. The exercise suggests that all of the sites were located in areas which might have given easy access to at least two or more different ecological zones and thus, easy access to a wide range of useful, seasonally variable resources. This phenomenon was also noted by Jarman, (1972).

<u>Bell's Quarry</u> (NY 851 421), (F4)

The Bell's Quarry site is located at just over 1800 ft. O.D. (553 m approximately) and may well have occupied a position in the hyper-forest zone. It is just below the summit of Burtree Fell and would have had easy access to the whole of the watershed area which gives rise to the

Tyne, Nent and East and West Allen rivers and innumerable small streams and burns in addition to the head of the Wear itself. These areas, as we have seen above, may well have been important summer grazing and browsing grounds for aurochs and red and roe deer, as well as allowing the exploitation of fish resources in the upper reaches of all the rivers mentioned. In addition, the Wear Valley itself would have allowed for movement downstream into the forest zone and the probability of increased plant food collection in the main valley. Plants from the forest edge, such as hazel, could also have been easily exploited from this site. Similarly, the possible base camp on Wellhope Fell (NY 835 416), (F 65) may well have had a similar exploitation territory and again movement along the, possibly treeless, watershed would also have given easy access to the headwaters of the Tees. That these areas may well have been important hunting zones could be supported by the finding of a possible aurochs horn sheath in association with struck flint which may mark a kill/extraction camp on Teeshead,(NY 699 340) at 2540 ft. O.D. (781 m approximately) (Johnson and Dunham 1963, 159-163). The location of these sites at heights in excess of 1000 ft. O.D. (307 m approximately) would also support the idea that they were occupied in the summer/early autumn only.

Police Field (NY 954 386), (F126) and the Eastgate group

These sites are located on the terrace system of the main river, in the upper dale and, as a result, could have had access to a large stretch of very productive river valley. Today, the area is known for the quality of its trout and sea trout fishing and the sites would have been ideally suited to exploit this food resource to the full. Indeed the gravel stream beds of the Middlehope, Rookhope, Stanhope and Shittlehope Burns on the north side of the river and the Swinhope, Westernhope, Horsley and Bollihope Burns on the south side, all of which may have been within the site's territories, are, as we have seen, the exact environments which are sought out by sea trout and salmon for spawning. The concentration of sites in the area, which could be a reflection of repeated usage of this part of the river valley, may well have been occasioned because of the predictable seasonal availability of large numbers of trout and salmon. The "pull" of this resource may well have been a major reason for site location around what is now Eastgate. In addition, the sites would also have allowed access to the wooded valley and lower slopes, with their plant and animal food potential, as well as the upland forest edge and the hyper-forest zone above. Again, in the hyper-forest zone, there would be easy access to the headwaters of the streams mentioned above.

Wager Head (NZ 012 337), (F63))

This site is in a very interesting location. Sitting, as it does, at just above 1275 ft. O.D. (392 m approximately), it may well have been on the very interface between the forest and the upland area above it. As such, these two zones could have been easily exploited from it and in addition, the valley of the Bollihope Burn would have allowed easy access into the main river valley. The site might also have been within striking distance of the hyperforest interfluve between Weardale and Teesdale, as well as a large expanse of land at the head of a whole series of streams draining into the Wear and Tees.

Evenwood and Binchester (NZ 155 250), (F121), (NZ 210 315), (F119)

These two sites, which are in the lower dale and middle Wear respectively, may well have been the kind of transitional sites that saw a twofold occupation in the course of our hypothesised annual round.

The Evenwood site is located towards the headwaters of the Gaunless, a substantial tributary of the Wear,which enters the river at what is now Bishop Auckland. In the Boreal/Atlantic period the area would have been forested, and trout, sea trout and salmon may well have been readily available in the Gaunless. However, the most interesting point about the placing of the site lies in the fact that its territory could well have included the Pennine foothills in the west and the Wear lowlands and the scarp slope of the East Durham Plateau in the east, in addition to the main Wear Valley to the north and the Tees valley to the south. It would seem to be quite centrally located to exploit a range of differing zones each of which may well have provided a wide range of food resources.

The Binchester site is also in a situation which might allow multi-zone exploitation. It is set above the river, overlooking a large expanse of alluvial valley floor which gives way in the west to the Pennine foothills, around Hunwick (NZ 188 325) and Crook (NZ 164 355). To the east, the scarp slope and top of the Plateau could easily have been exploited, and north and south lie the Wear lowlands which would have provided a wealth of plant and animal food. Both of these sites could have provided ideal bases for groups engaged in seasonal movement to and from the lowlands/uplands.

Finchale Nab and the Finchale group of sites

All of these sites in the middle Wear, Finchale Nab (NZ 974 473), (F122); Old Dunham (NZ 288 416), (F 45); Frankland Wood (NZ 270 420), (F19) and Finchale, Priory Farm (NZ 296 470), (F 15), could have exploited similar kinds of territory, and may well have been the late autumn/winter/early spring counterparts to the seasonally occupied upland sites. All are located close to the river in a section which has steeply incised meanders and many deep pools, providing ideal locations from which to exploit available trout and eel resources and to take advantage of early runs of migratory fish. Beaver, aggregated in their winter lodges, could also have been hunted with ease from these sites. In addition, all would have had access to land in the Pennines foothills, the Wear lowlands and the East Durham Plateau. It is precisely in these lowland stretches of the valley that we might expect seasonal concentrations of red and roe deer, and the slower stretches of the river may well have been a source of winter plant food in the form of aquatic vegetation.

Monkwearmouth (NZ 402 585), (F38)

Within the hypothesised territory of this site would have lain the sea coast cliffs and the sea shore, with their bird, plant and inshore fish resources and the site could also have drawn raw materials from the interior forest areas of the Limestone Plateau, as well as the slow moving section of the lower Wear. Again, the site may have been occupied in the late autumn/winter period, and it would have been ideally located to exploit deer populations moving into their lowland winter yards.

It is in the area of these hypothesised "exploitation territories" that we would expect to, and do, find the smaller "extraction" camps. As stated earlier these are envisaged as sites that are ancillary to the base camps and which allow for extended cropping of resources within the territory. Tentative models of the potential relationship between these sites in the dale, middle Wear and lower Wear/coast are set out in Figs. X.8 , X.9 , and X.10. While it is readily admitted that these are speculative they may be tested by future fieldwork and, indeed, may serve as a rough framework within which to organise future fieldwalking in the area. In the light of the ideas put forward above, it is suggested that we might expect to find further extraction camps around the spring and stream heads of the dale area and especially around the watershed at the head of the river (Spratt and Simmons, 1976). However, as pointed out in Chapter I (p. 31), these sites will only be located fortuitously in areas of eroding peat which may be hard of access. Conversely in the main valley, further fieldwork in the Eastgate/Stanhope area of the dale, which sees most ploughing, might be expected to produce more "base camp" scatters as well as evidence for smaller "extraction" camps.

In the lower dale and middle Wear it is suggested that future work should concentrate on the Pennine foothills and the scarp slope and top of the East Durham Plateau. Here we might expect to find extraction camps to go with the bases that would probably occur in the valley, close to the river. Further work in the valley itself, ploughing permitting, should concentrate on sheltered locations associated with the deep meanders and might be expected to produce further sites like Finchale Nab. Fieldwork by the writer at Houghall (NZ 284 405), (F152) on a spur of land overlooking the old course of the river has produced a concentration of flint, but no recognisable implement types have yet been recovered. Fieldwork at the lower end of the river around Sunderland is likely to prove difficult due to recent settlement expansion etc., however, more work on the cliff areas to the north and south of the river's mouth might well be expected to produce further small scatters similar to the material recorded from Ryhope (NZ 418 529), (F51) and Marsden, (NZ 406 643), (F 36).

It is hoped that the preceding section has provided an integrated social/economic framework within which to discuss the Mesolithic material from the valley, allowing a movement away from the simple typological approach outlined in Chapter IV which may lead to the analysis of the artefacts in isolation. Study of the economy of hunter gatherer groups must, of necessity, draw on ecology, animal ethology and the anthropological and ethnographic record, however, any models put forward must be capable of being tested, and it is hoped that the recommendations for and expectations of, future fieldwork might begin to provide such a testing mechanism for the seasonal/territorial models of Mesolithic land and resource use advanced above.

The Elm Decline and the "Mesolithic-Neolithic Transition"

Evidence for the Elm Decline has already been discussed in Chapter II above. While many now would prefer to see it not as a marker of the interface between the Mesolithic and Neolithic periods, preferring instead to view both it and the first major clearances of the forest, taking place in the later fourth millennium b.c., as, "comparable to the movements of mature communities in stable adjustment" to their environment (Whittle, 1977, 17), the regional and local occurrence of this phenomenon is still of great interest. Piggott for example (1981, 29), following the views of workers such as Troels-Smith (1960), argues that it may represent the local appearance of cattle herders who were lopping elm leaves selectively for fodder, while A.G.Smith (1975, 65-68; 1981, 152-153),in accord with the work of Nordhagen (1954),has suggested that the removal of elm bark by browsing animals themselves may have been a contributory factor towards the Elm Decline. If one accepts the general tenor of Piggott's argument then Chamber's observations (1974, 99-100) about what the spread of the Elm Decline may mean, have some interesting implications in the present context.

As was pointed out above (Chapter II, p.52) the earliest dates for the Elm Decline in the area in general come from eastern Durham, and the latest dates so far obtained come from bog sites in the west in Teesdale. When the available dates are plotted out to one standard deviation (66% probability) they are quite clearly distinguishable and separate, and the progression of the phenomenon from lowlands to highlands through time seems to be a real one. It may be suggested that a similar sequence of early dates in the lowlands and later dates in the uplands might also prevail in the Wear valley.

Chambers (1974, 99) has advanced the idea that this progression was the result of a "new culture" moving into the uplands from lowland Durham. If we accept the anthropogenic explanation for the Elm Decline it might be suggested that it was the result of Neolithic groups moving out of the lowlands and either selectively felling elms, being fully conversant with the fact that they may be taken as indicators of good, base rich soil, or lopping elm leaves for use as a fodder crop for animals during initial colonisation of the woodland or for overwintering.

Writing in 1963, using Yugoslavian data, Heybroek has shown that animal demands on leaf fodder for overwintering (90-150 days) are high, estimating that around 1 ha must be lopped for ten sheep and that cattle need up to five to six times as much fodder as sheep (Heybrock, 1963, 7). Similarly, Clark (1952, 124-125), quoting Sjobeck's Swedish work (1933), has suggested that each cow over-wintered would require some 1000 kg of leaf fodder. Thus, as Piggott has said (1981, 28), it should not be surprising to find the proportions of arboreal pollen rain perceptibly altered by the advent of pastoralists with such an economy in a given area.

In the course of this argument it may be useful to remember that the main site and find evidence for Neolithic activity in the study area and the county as a whole comes from the Magnesian Limestone Plateau. At Hasting Hill (NZ 355 541) there is air photographic evidence for a possible Cursus monument and an interrupted ditch system (Pl.VIII.126) as well as Neolithic pottery from the make up of a round barrow there (Chapter VI,p.185-187). In addition, there is also the Copt Hill, Houghton-le-Spring, cairn and the barrow on Warden Law which may both be Neolithic in origin. It is from this area that the proposed expansion into the uplands may well have taken place and possible reasons for this supposed movement will be discussed below.

After the Elm Decline, the pollen record shows a cyclical history of clearance, agricultural activity and regeneration. Several questions are posed by this phenomenon. At the most simple level we may legitimately ask why, and how, a specifically hunting, gathering and fishing economy gave way to a farming way of life, and also, what became of the hunter-gatherer groups in the valley?

Whittle (1977, 99-106) has discussed the idea of a major "Mesolithic-indigenous" contribution to the initial spread of agriculture, and dismisses it, favouring instead the model of population movement from the continent as the main causative factor in the arrival and development of agriculture in Britain. The whole thesis of his work is that agriculture spread as the result of new "settlers" coming into the British Isles and taking up the land, though whether, by the time the concept of agriculture reached the north, it was European farmers or acculturated, indigenous, ex-hunter gatherers who instigated it, is impossible to say.

It may be that the "idea" of agriculture was brought into the north-east from Yorkshire, the area with the best parallels for the pottery and mortuary structures discussed above, Chapter VI, p. 185-187, Chapter VIII, p.252), either by population movement or by culture contact. But however agriculture was introduced we are still left with the fate of our indigenous hunter gatherers.

Whittle makes some good, generalised, comments on this problem (1977, 104-106) and in the study area, the interpretation of the mixed flint scatters may be of importance. Whittle suggests (1977, 104) that the forest clearance, and by implication the permanent/semi-permanent occupation, associated with the spread of agriculture in the wooded environment, may have led to the disruption of indigenous patterns of hunting, gathering and fishing. Jacobi (1973, 274), has suggested that in the later Mesolithic the population was "numerous" and that an ordered exploitation of the whole of England and Wales was being carried out. If the disruption of traditional methods of subsistence came at a time when the indigenous population was numerous and even possibly growing, then it may have led to the assimilation of an agricultural economic strategy as the only viable alternative means of maintaining population numbers. The adoption of agriculture in this instance should be seen as a further human adaptation to changing social, economic and environmental conditions.

No doubt this assimilation was a gradual thing. Hunting and gathering may well have gone on for a long time until the hunters and gatherers could no longer compete with the more advanced farming technology as it encroached onto available land and allowed the farmers to monopolise resources. The "mixed" flint assemblages might be of some importance here, representing as they may do, evidence for the adoption of "Neolithic/Bronze Age" implement types by hunters and gatherers who were still using a basically Mesolithic artefact suite and were still pursuing a hunter-gatherer existence. A similar form of artefact assimilation has been argued for in Ireland by Woodman (1976, 299-306) and Mercer has suggested the possibility of this process on Jura in Scotland (1974).

Looking at the available radio-carbon dated pollen diagrams it may not be over-stretching the argument to suggest that groups who were specifically hunters and gatherers may have co-existed with farmers until the Late Neolithic/Early Bronze Age in the study area. This is certainly not to give credence to any form of "Mesolithic" influenced, Secondary Neolithic Culture, nor is it suggested that cultural and economic change took place along the lines set out by Raistrick and Bennett-Gibbs (1934), however, it is not until the Early Bronze Age period that large scale clearance takes place in both lowlands and uplands. This Early Bronze Age expansion onto the uplands, which will be discussed later, may well have been the final nail in the coffin of the indigenous hunters and gatherers in the valley.

Returning to the Elm Decline, one further point remains to be discussed, and that is the evidence from Teesdale which suggests the gradual movement of this phenomenon up the valley, through time. It has already been suggested that the Elm Decline might represent a movement of human interference with the forest up into the dale. It is essential now to try and explain why this might have happened and to suggest a mechanism for the process of this supposed human expansion from lowlands to uplands.

One possibility is that it represents the results of a gradual exploration of the upland valleys, initially with cattle and possibly pigs, which could browse, root and graze in the forest. The Elm Decline in this case probably represented the actual lopping of elm leaves as an additional fodder source for cattle in winter. This may then have been followed up by further clearance, with shifting arable agriculture taking place (c.f. Rendell's work on Rookhope Head, Chapter 2. In essence then, the Elm Decline in the valley may be one manifestation of a policy of increased commitment, especially to the uplands, culminating in the larger clearances of the late third andsecond millennia, when increased population in the lowlands may have necessitated the full utilisation of what had been marginal areas up until then. But this is to anticipate arguments which will be put forward in detail below.

Post Elm Decline

As has been shown in Chapter II, immediately post Elm Decline the picture of land use put forward for the study area is one of small scale, temporary, clearance, which sees an increase in grass, weed and shrub pollen and which in the absence of cereal pollen, have been assigned, almost automatically, to pastoral land use. The earliest intensive clearances occur in the lowlands in the Early Bronze Age, at Bishop Middleham around 1710±80 bc (3660±80 bp GaK2072), and at Wheelhead Moss in the uplands around 1200±100 bc (3150±100 bp GaK2913). By inference a similar situation seems to occur in Weardale (Chapter II. Cereals do not occur in the pollen record until 2593±70 bc (4543±70 bp SRR474) at Morden Carr and 1410±80 bc (3360±80 bp GaK2073) at Bishop Middleham and in the uplands they are scarce in the pollen record throughout the Bronze Age.

Thus, "pastoralism" is seen, in the literature, as the main economic strategy carried out up until the large scale clearance of the Middle Bronze Age, both in the study area and the county as a whole. The writer believes that this is merely a reflection of the traditional view of the economic separation of the Highland and Lowland Zones in Britain as a whole. Many writers have suggested that the economies of upland Britain were almost exclusively pastoral up until the medieval periods (Piggott, 1958; Turner, 1965; Cunliffe, 1978; Webley, 1976).

Since the mid seventies, however, there has been much work carried out which shows that this certainly was not the case (Ritchie, 1976; Sheppard, 1976; Guilbert, 1977 and Fowler, 1981), and Hawke-Smith (1979, 7-42) has discussed the problem at length, concluding that it seems highly unlikely that exclusively pastoralist economies were a viable proposition in the Highland Zone in prehistory. While it is not proposed to go over his arguments here,the writer is in agreement with his conclusions. It has been shown above, in relation to hunter-gatherers, that dependence on one major food resource is unlikely and that dietetically it would have been unwise. In addition, it might be suggested that an economy based solely on pastoralism has no real advantage over an economy which simply cropped the wild fauna (Hawke-Smith 1979, 16).

The absence of evidence for cereal pollen in the pollen record of the Neolithic and Early Bronze Age periods in the region should not be taken as evidence for absence of cereal cultivation in the agricultural technology of the groups under study. As Hawke-Smith says, "Cereals are known to release very small quantities of pollen and the peatbogs from which pollen sequences are necessarily extracted are normally located in areas which are best suited for grazing at a distance from the potential arable soils where 'arable weeds' would be most abundant" (Hawke-Smith, 1979, 14). This latter argument is very applicable to Weardale, and indeed in the lowlands the sparseness or lack of cereal pollen in the diagrams may merely be a reflection of the highly localised nature of the pollen rain falling on the bogs and the low pollen productivity of cerealia. This point apart, the Neolithic and Bronze Age archaeological evidence must now be examined to see how, if at all, it fits into the hypothesised schemes of land use as derived from the pollen data.

The lower Wear Valley cuts through the northern end of the Magnesian Limestone Plateau. In this area there may well be evidence to suggest that larger areas than are indicated on the pollen diagrams from the south of the Plateau, were being cleared. At Hasting Hill, the available air photographs show a ? cursus monument and an interupted ditched enclosure in close proximity and large scale forest clearance, as opposed to the small scale temporary clearances of the pollen diagrams, would probably have to have been carried out before these monements were constructed (see Fleming, 1972, 186). Indeed, selective excavation at these sites might well produce further environmental data in the form of land snail assemblages, which would fill out our picture of clearance and land use in the lower Wear area. A further source of information about the extent of clearances, and the nature of ensuing land use, may be the actual location and siting of sites such as barrows and cairns. Further reference will be made to this in detail below, however, some background details are essential in the present context.

Graham (1956-59, 21-3) and Fleming (1971, 2-7), in discussing the nature of upland "cairnfield" sites have suggested that the cairns may fulfil two functions:

(1) as burial sites

(2) as a convenient means of disposing of unwanted stones gathered in the course of land clearance,

and Fleming (1971, 7) has further argued that in a forested environment sufficient stone for cairn building can only be obtained once the trees have been cleared and the original forest soil has been truncated by agriculture and erosion. He thus equates the occurrence of cairns with clearance of the land prior to or during arable agriculture.

The writer would suggest that the points raised above may equally well be applicable to some cairns in lowland situations. At Copt Hill, Houghton-le-Spring (NZ 354 493), (B 8), on the western edge of the limestone escarpment, in the middle Wear Valley, is a false crest sited round cairn, arguably of Neolithic date (Trechman 1914, 123-130; and Chapter VIII,p.251), constructed of limestone "flags", sandstone "boulders" and turf (Fig.VIII.6). Applying the arguments outlined above we may suggest that the mound was built on cleared land on which arable had been, or was in the process of being, practised (c.f. Wayland's Smithy, Atkinson, 1966, 126-133). The cairn material may thus have been the product of land clearance. The presence of turf in the mound may also indicate the presence of open grassland in the area.

The siting of the mound may also give some indication of the extent of the clearance. The cairn is in a false crest location, overlooking the "valley" of a small stream at the foot of the escarpment (Fig.VIII.7, Pl.VIII.2a). When viewed from the lower land it stands out against the sky and appears to be on the scarp crest. This type of siting is common for Bronze Age barrows and cairns and Fox (1932, 54-55), Evans (1975, 135) and others, have suggested that this is an intentional siting and that the mounds were meant to be seen from a distance. Evans has argued that the regular occurrence of this phenomenon in the Bronze Age may indicate a larger and more permanent opening up of the land than in the Neolithic.

At Copt Hill then, in a Neolithic context, the cairn's siting, if it was intentional, may indicate that the scarp slope and surrounding lowlands were devoid of trees. The mound's composition may also indicate that some ground was being cleared for arable agriculture.

The first intensive lowland clearances documented in the pollen record come from Bishop Middleham and Hutton Henry in an Early Bronze Age context (Chapter 2, p.55). A similar clearance has also been noted at Hallowell Moss in the middle Wear (Chapter 2, p. 55) and when these dates are plotted out at one standard deviation, their overlap would suggest a generalised Early Bronze Age assault on the forest. Cereal pollen was being produced in sufficient quantity to be recorded in the lowland pollen diagrams for the first time at Bishop Middleham and Neasham towards the end of the period (Chapter 2, p.55) and by the end of the Middle Bronze Age, Bartley et al. (1976, 464) suggest that the East Durham Plateau may well have been as open as it is today. Again, evidence from barrow and cairn siting and composition in the lower Wear, at the north end of the Plateau would tend to confirm this picture.

As indicated in Chapter VIII (pp above) the round barrows and cairns in the whole of the valley fall into three specific groups in terms of their siting and location. On the limestone, in the lower Wear Valley, all the sites fall into group 3,"Hill barrows sited to overlook surrounding lower land".

Three sites on the ridge between Kinley Hill (NZ 432 466) and Hesledon East House (NZ 430 475), just outside the southern limit of the study area on the coast, may all have been false crest sited (Young, 1980, 6, Nos. 14, 15 and 16). Two of these sites (Young, 1980, 6, Nos. 15 and 16) were cairns (now destroyed) which, when first recorded in the 1920's (Bennett-Gibbs, 1932, 22), produced flint and human bone fragments. The third site is a possible earthen barrow, recorded in the course of the writer's field work. All three sites were probably located to overlook a thin strip of flat land above the sea cliffs, now utilised by the Sunderland/Hartlepool railway line. Again, this may give some indication of just how devoid of trees this part of the landscape was in the Bronze Age. Following the arguments set out above (pp.351) we may suggest that the cairn material derived from clearance of stone prior to or during arable agriculture.

Cairns also occur at other locations on the limestone, at High Elstob Farm (no grid reference), (B47 and B48), two sites (now destroyed) (Bennett-Gibbs, 1932, 25), Tunstall Hills 'A' (NZ 391 544), (B72) and at Warden Law 'A' (NZ 376 502) (B74). The Warden Law site was excavated by Trechmann (1914, 162-167) and was,"comprised mainly of large boulders and masses of magnesian limestone with much gravel". There may also have been a boulder retaining kerb around the mound. Here, again, in the absence of a quarry ditch, it may be that the cairn was built after the "forest" in the area was cleared and the land picked clean of stones.

The barrows and cairns on Batter Law (NZ 406 459) (B2), Hasting Hill 'A' (NZ 352 543) (B45), Tunstall Hills 'A' (NZ 391 544) (B72), and Low Hills (NZ 413 415), (Young, 1980, 10, No. 50)(now destroyed) have all been placed on the highest points in the area, the tops of the small hills of the Plateau, and all are, or were, conspicuous from many directions. The recurrence of this kind of siting may indicate that it was an intentional placing of the mounds, so that they could be seen from a distance. Again, this could be taken as another indication of the open nature of the landscape in parts of the lower Wear.

Intervisibility between barrows and cairns may also bolster this argument somewhat. In an open environment, the two ploughed barrows at East Murton, Murton Moor (NZ 381 460, NZ 380 461) (B37), (B38), would have been visible from Batter Law. The site on top of Hasting Hill would probably have been visible from Tunstall Hills and the cairn on Warden Law would be visible from Batter Law. Several of these sites would repay excavation or re-excavation, in order to obtain environmental data from buried soil horizons which may well be preserved beneath the mounds.

Turning to the uplands in the post Elm Decline period, we have little data to aid our discussion of Neolithic land use, though some suggestions can be made. Bradley's work on the nature of agricultural land use in Cumbria (1972) has shown that, "there is a certain correspondence between the discovery of isolated axes and local evidence for an elm decline", which, "would at least be consistent with the thinning of tree cover and lopping of leaf fodder well beyond the limits of domestic settlement" (1972, 200). As shown in Chapter V, the majority of the stone axes in Co. Durham come from the Wear Valley and in particular the dale area. In this part of the valley we have noted that those axes which can be provenanced with certainty come from the fell tops at heights of over 1000 ft. O.D. (307 m approximately) or the lower slopes of the valley side. It may well be that these axes were used to lop fodder, and to thin out the tree cover, in areas away from the main settlement locations, as part of the strategy of increased commitment to the uplands which has been discussed above. The Rogerley Quarry axe (SI14) may also indicate that clearance was going on in the main valley.

Bradley has also suggested (1972, 201) that the siting of the few long barrows in Cumbria,"does not imply any close relationship with the grazing areas ... Instead they are linked to the more densely settled areas and seem to be placed on the higher ground towards the margin of the contemporary intake". The one possible long barrow in the dale may well be in a similar location. The Ireshopeburn mound is located at 1150 ft. O.D. (353 m approximately), almost at the head of the dale. It is orientated east-west and is placed next to the foot of the gravel terrace slightly above the river. This siting, as we have seen above (Chapter VIII) compares favourably with other long barrows in the north and it may be that its location is an indication that actual settlement in the Neolithic period took place in the main valley itself.

Possible evidence for Neolithic cattle grazing on the uplands of the dale may be seen in the Ireshopeburn horn sheath (Johnson and Dunham, 1963, 159-161), though the problems with species identification outlined above (pp. 313-314) must make this suggestion a tenuous one.

In the Early Bronze Age in the lowlands, we have already seen what may be the beginnings of intensive land clearance and the first evidence of cereal pollen in the palaeobotanical record. When the upland area is considered there is also evidence which supports the idea of Early Bronze Age inroads on the forest. Turner et al. (1973, 327-408) document forest composition changes in the Cow Green Reservoir Basin and note an increase in grass and heathland at around 1220±100 BC. Chambers (1974, 101) has isolated potential Early Bronze Age clearance at Valley Bog in Teesdale and Rendell (1971, 31) has suggested a complex sequence of clearance and regeneration from Rookhope Head culminating in the first appearance of cereal pollen in the Bronze Age. The traditional land use model though, still accepts that much of this clearance was linked with pastoralism and many workers believe that the Early Bronze Age saw only a continuation of, "Neolithic nomadic pastoralism".

Again, it may be argued that in the dale, as in the lower reaches of the river, we have archaeological evidence which may contradict this view. The Crawley Edge cairnfield is a major case in point here. As shown in Chapter VIII (p.268) the site is located on a south facing spur of land at 1050 ft. O.D. (323 m approximately), above the main valley, flanked on the east side by the Shittlehope Burn and on the west by the Stanhope Burn. Fleming's arguments on the nature and origin of the stone for cairn building have already been discussed and other evidence from the excavation and fieldwork at this site may lend weight to the theory that the cairns were built from stone cleared in the course of arable agriculture. Preserved beneath the excavated, large mound, on the mineral soil surface, was a spread of charcoal, the majority of which has been identified as oak (Quercus), probably from branches of the tree. This may well represent clearance of the land and burning off of the vegetation prior to the construction of the cairn. In addition the lower stone of a saddle quern was recovered from the body of the mound (Fig. VIII.16).These two factors, in addition to the site's southerly aspect, and Fleming's arguments, allows the postulation that the land was being cleared for arable agriculture. The plan of the site (Fig. VII.10) also suggests that the stone was being cleared outwards from a central area and the evidence from the smaller of the two cairns excavated indicates that small dumps of stone were made against features such as earth fast boulders. A similar phenomenon was noted at Alnham, Northumberland (Jobey 1966, 25).

Downslope from the Crawley Edge site is a small bog which was examined by Donaldson and Rackham in 1976 and while this deposit was thought to be too shallow to provide any useful palynological data (it was less than 1 m deep), beneath the organic material was a silt layer which may be the result of soil creep down the slope after the uphill landsurface had been broken up (J. Rackham, pers. comm.). While no chronological evidence is available for this phenomenon it may well be the result of tilling or cultivating of the land upslope and may tie in with the clearance and cairn construction. As funds were not available for further work in this area, this hypothesis must remain tentative. It is fortunate that dating evidence, in the form of two radio-carbon dates, is available from the larger of the two cairns excavated. As noted above (Chapter VIII, p. 274), the charcoal from the surface beneath the cairn produced a date of 1400±90 bc (Har 3323), while charcoal from within the structure of the monument produced a date of 1420±80 bc (Har 3322). The agreement between these two dates is such as to make them statistically indistinguishable and it would allow the suggestion that burning off of the vegetation at the site occurred between 1310bc and 1490bc. When this data is compared with the dates for clearance and the appearance of cereal pollen in the lowlands, plotted out to one standard deviation, there is significant overlap between the Crawley Edge determinations and the dates from Bishop Middleham and Neasham. Similarly the activity at Crawley Edge may be broadly contemporary with that noted by Chambers at Valley Bog, and with the dates for clearance at Cow Green (see above p.355) and Chapter II, p.56). Recent work by Coggins and Fairless in Teesdale has revealed similar sites to Crawley Edge at heights above 1000 ft. O.D. (307 m approximately) and their excavation at Bracken Rigg, in the summer of 1977, at a height of 1280 ft. O.D. (393 m approximately), revealed a stone built Early Bronze Age settlement dated to 1280±70bc. This site also seems to have small cairns associated with it which again may be indicative of land clearance (D. Coggins, pers. comm.)

Thus the work at Crawley Edge may show the potential for arable agriculture at heights of around 1000 ft. O.D. (307 m approximately) in Weardale. This need not seem as preposterous as it first sounds. Manley (1941, 197-198), points out that in Durham County grain crops have constantly been grown at heights above 700 ft. O.D. (215 m approximately) and that during the period of active lead mining in the district, in the nineteenth century, oats were grown up to 1300 - 1400 ft. O.D. (400 m - 430 m approximately) in the dales. He also records that oats were grown successfully in 1940 at 1250 ft. O.D. (384 m approximately), "just over the Cumberland border", following an exceptional summer. More importantly, he actually highlights the fact that the upper dale and the area of Upper Teesdale above High Force, are the highest areas of cultivation in England. This is due to the sheltered nature of the valleys, (indicated by the fact that trees will grow almost up to the head of the river in the valley and the lower slopes, but cannot at present grow on the open and exposed uplands around Wolsingham), favourable exposure, the better drainage afforded by the valley slopes and the fact that patches of glacial drift derived from the carboniferous limestone are found up to around 1900 ft. O.D. (584 m approximately). Place name evidence from the upper dale such as Corn Riggs (NY 847 414) at 1300 ft. O.D. (400 m approximately), Middle Rigg (NY 854 392) at 1250 ft. O.D. (384 m approximately) and High Rigg (NY 849 389) at 1100-1200 ft. O.D. (338 - 369 m approximately) also lend weight to the argument that cultivation is possible around 1000 ft. O.D. (307 m approximately) at the present day.

If this is the case today, then in the Neolithic and more pertinently here, the Bronze Age, when Lamb (1963) has suggested that summer temperatures were some 2° - 3° C higher than present and Taylor (1975) has estimated that on average the difference between Sub-Boreal and present day temperatures was some 1° - 1.5° C, arable agriculture could easily have been practised in the upper dale. In this context too it is also worth remembering that the Rookhope Head peat, which produced cereal pollen in a possible Bronze Age context, is situated above 1000 ft. O.D. (307 m approximately). Also in general support of this contention is the growing body of literature which deals with the potential of other upland areas, for arable agriculture in the period (Fleming, 1971, 1976; Feachem, 1973; Fowler, 1981, 63-278; Bradley, 1978 and references therein; Spratt, 1978, 1981, 1982, 139-184, and references therein; Burgess, 1980; Topping, 1981). Many more examples could be cited here but those above serve to show the potential of the high land of the dale for arable agriculture in addition to its undoubted use for grazing.

On the lower slopes of the dale and on the river terraces, there may also be some evidence to suggest a degree of arable cultivation, at least in the Early/Middle Bronze Age. Bradley (1972, 201-202) has argued that in Cumbria there may be a relationship between the distribution of perforated stone mace heads and axe hammers and areas used for cereal growing. Both have "lowland" distributions, and Bradley would see their frequent discovery in isolation as lending some weight to the idea that some "maceheads" were digging stick weights and that axe hammers may have been used as the tips of ards (though he expressed some doubt that this was their only, or original, function). Evidence in support of this comes from Gwithian in Cornwall, where a broken axe hammer was found in an ard furrow (Thomas, 1970). Atkinson (pers. comm.) has suggested that the larger axe hammers may have served as clod-breakers, used to pulverise large lumps of earth, after the initial breaking up of the land by implements such as ards which could not turn a furrow.

Broadbent (1975-77, 63-107), has also discussed the possibility that, in Scandinavia and Finland, perforated stones of the type classed as "maceheads" in Britain may well have functioned as digging stick weights. A similar picture might be projected for the dale. Here there is a contrast in the distribution of the polished, Neolithic, axes, all found around and above 1000 ft. O.D. (307 m approximately) and the perforated material which, with one possible exception, comes from below 1000 ft. O.D. (307 m approximately) on the terraces and lower slopes.

If the perforated implements are accepted as tools which may be linked with arable agriculture then the siting of the four, possible, unditched round barrows on the terrace between Horsely Burn and Eastgate (B49, B50, B51, B39) may be significant. Their position on the very edge of the terrace system has already been remarked upon (Chapter VIII, p. 253), and their similarity in size, all around 12 - 15 m in diameter, when sufficient material would have been available from the terrace side for larger barrows to be constructed,should also be noted. It may be that they were located on the very edge of the usable land on the terraces and that size was regulated by the need to conserve land. It may well be that one is dealing here with a similar phenomenon to that suggested at Crawley Edge, a mixture of field clearance and burial site. In addition, the sites on the south side of the river at Horsely Burn Farm (NY 973 385), (B49) and Horsely Hall 'A' (NY 965 384) (B50) are intervisible. If this intervisibility was an important factor in prehistory then the mounds might take on added significance as possible land boundary markers.

By the Later Bronze Age period in the dale the animal bone evidence from the Heathery Burn Cave suggests that there was sufficient cleared land for sheep and cattle to graze together (Inventoria Archaeologia 1968, GB55, 10(8), 10(9)). Similarly the presence of bone cheek pieces, phalerae and knave bands in the hoard might allow us to argue that the valley and lower slopes were open enough for horses and wheeled vehicles to be used in the district (Inventoria Archaeologia, 1968, GB55, 10(1), 10(2), 10(3)).

Two further points should be discussed here before moving on to the 1st millennium BC, Iron Age, period in the study area;

(a) the role of hunting and gathering in the Neolithic and Bronze Age periods and (b) the interpretation of the Neolithic and Bronze Age flint scatter sites in the valley.

(a) Hunting and gathering

It has been argued above that for some elements of the population within the study area the hunting and gathering way of life may have continued as the major subsistence mode until the Bronze Age period. However, there is evidence to suggest that hunting and gathering may well have made some contribution to the economy of Neolithic and Bronze Age agriculturalists. Murray (1970, 321-329, Tables 136, 138, 141, 145) and Burgess (1980, 262-264) have both shown that in this period hunting and gathering does occur. In the middle and lower Wear area evidence for the continued exploitation of shellfish comes from Hasting Hill, where periwinkle shells were recovered (Trechmann, 1914, 150) and Fulwell and Wheat Hall Farm, where burials were associated with limpet shells. Hasting Hill has also provided evidence for a possible continuation of deer hunting in the form of an antler actually cut from a stag's head, as well as unidentified fish bones.

The upper dale also provides firm evidence for the Later Bronze Age in the form of animal bones from the Heathery Burn Cave where wild boar, red deer, fox and possibly roe deer are all present (Inventoria Archaeologia, 1968, GB55, 10(2), 10(8), 10(9)). Shells of marine mollusca have also been recorded from the site (Greenwell, 1894, 89 and 94-95; Inventoria Archaeologia, 1968, GB55, 10(1)).

In the earlier, Neolithic, period the aurochs could still have been hunted and red and roe deer were also probably exploited as man made his assault on the forest cover. In both the Neolithic and Bronze Age periods the river itself would still have provided a rich fish harvest.

The distribution of isolated Neolithic and Bronze Age arrowhead finds may also be an indication of where hunting was taking place (Fig. IV.20). As might be expected some finds have come from what would have been the fairly open uplands above 1000 ft. O.D. (307 m approximately) in the dale. Finds from the lower lying areas in the valley and on the limestone may indicate that cleared land, which may have been in the process of regeneration or lying fallow, was being shot over.

(b) <u>Neolithic/Bronze Age flint scatters</u>

In the upper dale six sites have been identified. All, with the exception of Crag Nook (NY 984 389) (F76), are above 1000 ft. O.D. (307 m approximately) and four, Westernhope Burn (NY 935 366), (F116), East Newlandside (NY 976 375) (F 79), Horsley Burn (no grid reference) (F 91), and Bankfoot Quarry (NY 924 434) (F 74) are closely associated with tributaries of the main river. A major problem in their interpretation is whether they represent seasonally occupied sites or whether they are indicators of more or less permanent settlement in the area. The occurrence of leaf shaped arrowheads and a scraper at Bank Foot Quarry may be an indication that the site was a hunting camp located on the uplands above the Rookhope Burn. The limited nature of the tool types from the other sites might also allow for a similar explanation for their function, though the material from Westernhope Burn may be of some interest. One knife, nine scrapers (three core scrapers, six on flakes), one possible burin, one barbed and tanged arrowhead and seventeen miscellaneous retouched/utilised flakes make up the main artefact suit from the site. Bradley has argued (1978, 45-6 and 107) that scraper dominated assemblages like this one, in lowland contexts, may be indicative of an overriding interest in pastoralism, the tools being used in hide preparation etc. The site could have been seasonally occupied serving as a base for a group exploiting upland pastures in a seasonal grazing round. The site is in a sheltered location with good contacts down into the main valley and up onto whatare now the fells.

The sites in the lower Wear are even more enigmatic, several being recorded purely from documentary sources. However, the material from Flinton Hill (NZ 239 545), (F81) and Middle Herrington (NZ 350 538) (F103) is in close proximity to the area of Hasting Hill where the barrow,excavated by Trechmann,produced evidence for sheep, oxen and horse (Trechmann, 1914, 143 and 155), and where it has been suggested that significant clearance may have taken place in the Neolithic and Bronze Age periods. The site at Great Eppleton (?NZ 368 462) (F82) is close to Copt Hill and the Murton Moor barrows. It may be that these fleeting references to locations which have produced flint, much of which is now lost, indicate where permanent or semi-permanent settlement took place on the limestone in the Neolithic and Bronze Age periods.

This point brings us back to problems of site chronology set out in Chapter IX (pp.299-304). Here it was pointed out that several hut and enclosure sites may date to the Bronze Age period, though before anything really conclusive and constructive can be said about this point, more excavation is necessary in the area.

1st Millennium BC

The vegetational history of the area in this period has been fully discussed in Chapter II above. Large scale forest clearance is common with an increase in the representation of cereal pollen and weeds of cultivation in all pollen diagrams. Roberts et. al have suggested that the main river valley,in the dale,was more cleared of trees than its tributaries (1973, 217) and that, on the whole, in all areas of the river system, the main interest seems to have been mixed farming, though some continued seasonal occupation of the uplands may still have continued.

The archaeological evidence from the region contributes little to the discussion here, purely because of the lack of excavation on sites which may date to the period. As we have seen in Chapter IX above many of the enclosure sites observed on the air photographs have been ascribed to this period. If this were true (but see the arguments advanced in Chapter IX) then the occurrence of the majority of these sites on low base status Brown Earth soil, the best all purpose agricultural soil in the area, might be taken to indicate an increase in stable, agriculturally based, settlement in the period, but once again the lack of dating evidence does not allow unqualified acceptance of this idea.

In the middle Wear only two enclosure sites, Brandon (NZ 201 398) (S8) and Coxhoe, West House (NZ 326 360) (S12), which arguably date to the pre-Roman Iron Age,have been excavated. Both showed evidence to indicate a mixed farming economy on both the sandstone of the Coal Measure area and the Magnesian Limestone of the East Durham Plateau. Brandon has produced saddle quern fragments and grain rubbers (Jobey, 1962,25-28), while the Coxhoe site revealed saddle and possibly rotary quern fragments as well as the remains of spelt wheat, possibly emmer, and barley. Pastoral activities are suggested at Coxhoe by the presence of spindle whorls and also by the animal bone assemblage which consists of cattle (47%), sheep (32%), pig (4%) and dog. Horse riding, or its use for traction purposes,is also suggested by the presence of horse bones (17%) in the assemblage (Haselgrove and Allan, forthcoming).

Quern fragments have also come from West Blackdene (NY 867 392) and Frosterley (NZ 029 369) in the dale, though no firm dating evidence is available for this material.

Future Perspectives and Epilogue

The preceding chapter, though highly speculative in parts, has suggested that overall in the study area what can be observed as time progresses, is an increasingly ordered and organised exploitation of the land and animal and plant resources. Far from being savages whose lives were nasty, brutish and short it has been suggested that the Mesolithic groups in the region exploited the valley in a planned way with settlements being located to allow optimum exploitation of the contemporary environment.

The possibilities for testing these ideas have been put forward above but several important questions still need answering for the period. The role of Mesolithic groups in initiating forest clearance might well be clarified by further palynological work in the dale area, particularly in the blanket peats on the higher moors (c.f. the results obtained by Jacobi et al.(1976) in the Southern Pennines). Selective excavation at one or more of the flint sites in the valley may also provide answers to the problems posed by the mixed flint scatters (but see above p A programme of flint tool edge wear and damage analysis would also be a major contribution to our understanding of the function of not only the Mesolithic sites but also the flint scatters of Neolithic/Bronze Age date. It is hoped to carry out future research on this aspect of the lithic assemblages.

For the later periods in the valley, in addition to the need for more general fieldwork, there is a definite need for more radiocarbon dated pollen diagrams. This would decrease our general reliance on the work done in Teesdale and the surrounding district and might also provide a control mechanism for some of the suggestions put forward above, leading to modification and if necessary complete revision, of some of the ideas advanced.

Selective excavation, and in some cases re-excavation, of barrow and cairn sites in the study area, with a view to recovering environmental information from preserved buried soil horizons would also be a major contribution to land use studies particularly on the limestone. Here one might suggest that the Copt Hill barrow would give useful evidence for early/pre-Neolithic environmental conditions. Similarly, sites such as those at Murton Moor (B37), (B38) and Batter Law (B2) in the lower Wear area and Horsley Hall 'A' and 'B' (B50), (B51) may produce data for the immediate post-Neolithic periods.

However, by far and away the most important questions which need resolving concern the enclosures and settlement sites recovered from aerial photography and upland fieldwalking. Work on these sites would be important not only for the prehistory of the valley but for the county as a whole. In the dale the fields beneath the present land divisions, particularly around Old Park Farm (S33),(S34) and Dun Hill (S67) may well represent evidence for the early structuring of the cleared landscape. In the past, many workers have assumed that these are Iron Age boundaries, though without excavation we may never be sure, and recent work in the north should warn us against such a simple equation. Similarly,there is a need to examine the stone built huts and structures identified in areas like the valley of the Bollihope Burn, (S31, S37, S38, S39, S40, S51, S52, S53, S54).

If these sites, and more of the lowland enclosures,were excavated and dated, we would be in a better position to integrate settlement and pollen data with a view to discussing subsistence and land use patterns. As a corollary to this, further fieldwalking in the tributary valleys in the dale area may well produce settlements in locations where they can be directly linked with potential pollen sites. The structures on Bollihope Common and at High Northgate (S47), in the Rookhope Burn valley, show the potential of these areas.

In a perfect world all of this work and more would be possible in the region. However, the writer is not so naive as to think that, given present financial constraints, all other archaeological research in the north-east will stop to allow interest to be focussed on one river valley and its tributaries. Additional work is needed though and despite the fact that the valley has been neglected in the past and that much has been lost already, (Figs I.3 , I.4 , L.5 , I.6 , I.7), it is hoped that the potential of the region for study has been shown by this work. It is essential that further efforts are made to understand the raw data of the region's archaeology before moving on to regional or national generalisation and synthesis as failure to do so may lead to an undervaluing of the worth of some areas from an archaeological point of view.

In this context, it is gratifying to see that in County Durham as a whole one major step has recently been taken in this direction by the Durham Archaeology Committee's instigation of "The Durham Survey". This project aims to tackle the archaeology of the area on the basis of a large scale sampling strategy and the initial survey plans for "in depth" fieldwork in the upper dale. This will, no doubt, produce additional prehistoric material to that discussed in the preceding chapters and may allow for a revision of some of the thoughts on prehistoric land use that are expressed in Chapter X.

While major threats to the region's archaeology such as afforestation, quarrying and open cast mining and settlement expansion continue (Clack and Gosling, 1976, 64-80) it is important that what is lost and what is newly revealed is recorded. Given the likelihood of further cutbacks and increased "privatisation" within the subject under the present Government, it is essential that all those involved in the region's archaeology come together to work out a scheme of future priorities for the north-east. Forward planning in this way, with some flexibility to cope with unforeseen emergency requirements, will allow for the best use of the meagre financing which the region receives when compared with the rest of the country. Increased public participation is also necessary, as it is only with the help of interested individuals and local groups that an adequate record of sites and monuments in the region as a whole will be built up.

At the outset (p.24) in quoting Sopwith (1833), the writer ventured to suggest that few people knew of the prehistory of the Wear Valley. If the present work can in any way redress the balance by stimulating further interest in the area and by posing more questions to be answered by future research, then the Department of Education and Science's investment of a three year major research award in the writer was not entirely wasted.

Appendix 1 Polished and Perforated Stone Implements in Co. Durham

Find Spot	Grid Ref.	Present Location	References
BOWLEES Nr. Cauldron Snout	NY 814 287	Bowes Museum, Barnard Castle	Wooler, 1910, 199. N.M.R. Card, Durham University, Dept. of Arch. NY82NW No. 1.
BLAYDON	-	-	N.M.R. Card, Durham University, Dept. of Arch. NZ16SE No. 13.
COTHERSTONE	-	Sunderland Museum	R. Miket, pers. comm
DARLINGTON	-	? Private possession	N.M.R. Card, Durham University, Dept. of Arch. NZ21SE No. 23.
EBCHESTER	NZ 104 555	-	Reed & Austin, 1976, 222.
HARTLEPOOL, Catcote	-	Hartlepool Museum	Plowright, 1978, 110
MIDDLETON IN TEESDALE	NY 94 25	Bowes Museum 1964.2.	Unpublished.
HOLWICK, Strands Gill	NY 902 267	Bowes Museum	Unpublished
JARROW (Flint axe)	-	-	V.C.H., 1905, I, 199. Evans, 1897, 101.
JARROW (Flint axe)	-	-	V.C.H., 1905, I, 199. Evans, 1897, 101.
LANGDON BECK	NY 856 304	-	N.M.R. Card, Durham University, Dept. of Arch. NY83SE.
MURTON	-	-	Manby, 1967.
RABY CASTLE	-	-	V.C.H., 1905, I, 199. N.M.R. Card, Durham University, Dept. of Arch. NZ12SW No. 8.
RYTON, Clara Vale	NZ 129 646	-	Cocks, 1933-34, 354. N.M.R. Card, Durham University, Dept. of Arch. NZ16SW No. 4.
SOUTH SHIELDS, Roman Fort	-	-	Bruce, 1884, 273-274. Hodgson, 1903, 9. N.M.R. Card, Durham University, Dept. of Arch. NZ36NE 14.
SOUTH SHIELDS	NZ 361 674	-	N.M.R. Card, Durham. University, Dept.of Arch. NZ36NE 26.

Find Spot	Grid Ref.	Present Location	References
STOCKTON ON TEES	NZ 420 193	-	N.M.R. Card, Durham University, Dept. of Arch. NZ41NW No. 6.
WHICKHAM	-	Museum of Antiquities, Newcastle-upon-Tyne	Anon., 1918, 16. N.M.R. Card, Durham University, Dept. of Arch. NZ26SW 36a.

PERFORATED IMPLEMENTS

Find Spot	Grid Ref.	Present Location	References
BILLINGHAM	Dredged from the Tees	-	Elgee, 1930, 61-62, Pl.XI, Fig.20, No.2.
BLACKHALL MILL	NZ 122 569	-	Jobey, 1972, 292-293 No. 4.
DENTON	NZ 217 191	-	N.M.R. Card, Durham University, Dept. of Arch. NZ21NW No. 36.
EGGLESTON	NY 99 23	? Bowes Museum	N.M.R. Card, Durham University, Dept. of Arch., NY92SE No. 5.
FELLING	Nest House Estate	-	Anon.,1937-38, 148-149. N.M.R. Card, Durham University, Dept. of Arch. NZ26SE No. 12.
GAINFORD	? NZ 17 16	-	V.C.H., 1905, I, 199. Anon., 1905a, 74. N.M.R. Card, Durham University, Dept. of Arch., NZ11NE No. 17.
LEADGATE	NZ 137 516	-	Reed & Austin, 1976, 222.
REDWORTH	-	Bowes Museum, 1945, 3, 57.	V.C.H., 1905, I, 199-200. N.M.R. Card, Durham University, Dept. of Arch., NZ22SW 3.
STOCKTON AND DARLINGTON RAILWAY	?	Bowes Museum, 1957,58.	Unpublished.
WHICKHAM	NZ 212 616	-	N.M.R. Card, Durham University, Dept. of Arch., NZ26SW 11.

Appendix 2 Pottery Finds from Co. Durham

Find Spot	Grid Reference	Vessel Form	Context	Present Location	References
AXWELL PARK, SAND QUARRY, BLAYDON	NZ 190 619	1 "Urn"	With burial in cist	Now lost	a) Bourn, 1896, 174.
AXWELL PARK, SAND QUARRY, BLAYDON	NZ 191 625	1 Beaker 1 Food Vessel	In fine gravel of sand pit, no burial	? Lost	a) N.M.R. Card, Durham University, NZ16SE 16.
BARNARD CASTLE	-	1 "Cinerary Urn"	No information	? Lost	a) V.C.H., 1905, I, 207. b) Gibson, 1978, 91.
BEWES HILL	NZ 170 630	1 Food Vessel	With burial in cist	Sunderland Museum	a) N.M.R. Card, Durham University, NZ16SE 10. b) Gibson, 1978, 57, No. 9.
BILLINGHAM	-	1 Cinerary Urn	No information	? Lost	a) Gibson, 1978, 91.
BISHOP MIDDLEHAM	NZ 332 324	Indeterminate	? Iron Age burials in cave	Hancock Museum, Newcastle	a) Raistrick, 1933b, 111-122 b) Plowright, 1978, 87.
BRACKEN RIGG	NY 862 282	At least 1 coarse vessel	Bronze Age Settlement	Bowes Museum, Barnard Castle	a) Coggins & Fairless, forthcoming.
CASTLESIDE	-	1 "Cinerary Urn"	From cist	? Lost	a) Gibson, 1978, 93.

Find Spot	Grid Reference	Vessel Form	Context	Present Location	References
CATCOTE, HARTLEPOOL	NZ 491 315	1 Food Vessel 1 Beaker At least 25 Iron Age/R.B. vessels and imported pottery	Iron Age/R.B. Settlement	Gray Museum and Art Gallery, Hartlepool	a) Long, pers. comm. b) Plowright, 1978, 110.
CLARA VALE, RYTON	NZ 130 646	1 Beaker	From cist	? Now lost	a) Trechmann, 1914, 132-4.
EGGLESTON	NY 977 243	1 Bucket Shaped "Cinerary Urn"	Upright, with cremation set in river bank.	Bowes Museum, Barnard Castle 1975.17.	a) Gibson, 1978, 91, No. 143 b) Gibson, 1980, 18-21.
FORCEGARTH PASTURE	NY 875 285	1 vessel, Indeterminate	Iron Age/R.B. Settlement	? Bowes Museum, Barnard Castle	a) Plowright, 1978, 142. b) Coggins & Fairless, 1980,
HART	NZ 469 349	1 fragment of Grooved Ware	? domestic site	? Now lost	a) D. Austin, pers. comm.
HARTLEPOOL	-	1 "Urn"	? from submerged forest ? Bronze Age	-	a) Plowright, 1978, 166.
HARTLEPOOL	NZ 497 372	1 Bucket shaped urn	? Burial	-	a) Woodhead, 1966, 237-9.
KELLOE LAW	NZ 362 373	1 Beaker	Burial cist with 5 inhumations	? Bowes Museum	a) Wake & Wright, 1951, 213-220.

Find Spot	Grid Reference	Vessel Form	Context	Present Location	References
LOW HILLS, EASINGTON	NZ 413 415	1 fragment indeterminate	From barrow mound	Lost	a) Trechmann, 1914, 168.
RYTON	NZ 167 629	1 Food Vessel Urn	From sand pit, no burial	Newcastle Soc. of Antiquaries Museum, 1929.17	a) Brewis & Cowen, 1929, 197-8, illust.
SEATON CAREW	-	1 sherd, ? Bronze Age	? from foreshore	-	a) Plowright, 1978, 229.
SUMMERHILL, BLAYDON	NZ 176 634	1 Food Vessel	From cist	? Sunderland Museum	a) Bulmer, 1938, 218. b) Bulmer, 1939, 260.
TRIMDON GRANGE	-	1 Food Vessel Urn	From burial in barrow	British Museum, London: BM 12-9. 1733.	a) Greenwell, 1877, 442. b) V.C.H., 1905, I, 207.
WASHING WELL FARM, WHICKHAM	NZ 215 601	1 Food Vessel Urn	From cist with cremation	Sunderland Museum	a) Cowie, 1978, 85-86, Fig. 4. b) Gibson, 1978, 86, No. 100

Appendix 3 <u>Further Cairn Discoveries on Crawley Edge, 1982</u>

(A) To north of B36 (Crawley Edge 28) in an oval cairn lying in thick heather 5.40 m x 2.70 m approx. 0.50 m high.

(B) West of B36. Small circular mound. <u>Diameter</u>: 3.55 m, <u>Height</u>: 0.40 m.

(C) On flat land, overlooking Shittlehope Burn 200 m west of B36, oval mound 4.90 m x 2.40 m. <u>Height</u>: 0.40 m. Lying close to a recent drain.

(D) 4 m to N.W. of (C) lies another oval mound, orientated north-south and turf covered 4.60 m x 3.30 m. <u>Height</u>: 0.40 m.

(E) 10-11 m to N.W. of (D) is an oval grass covered mound some stone visible. 5.40 m x 4.25 m. <u>Height</u>: 0.45 m.

(F) To north of (E) is a small oval mound 4.00 m x 2.00 m. <u>Height</u>: 0.30 m.

(G) West of Rogerwell Hush, below the shooting butts are three small cairns visible in the heather. All less than 3.00 m in diameter and approximately 0.40 m high.

(H) East of B11 and B12, overlooking Shittlehope Burn, at a lower altitude oval mound, 3.80 m x 4.30 m. <u>Height</u>: 0.75 m.

(I) South of (H) circular mound. <u>Diameter</u>: 4.70 m, <u>Height</u>: 0.50 m. Slight disturbance in centre.

(J) South-east of I a small mound 3.66 m x 4.00 m. <u>Height</u>: 0.75 m.

(K) Small mound, less than 3.00 m in diameter and 0.30 m in height. South of B11 and B12.

(L) South of B11 and B12, further small mound, less than 3.00 m in diameter and 0.30 m high.

Appendix 4 Possible sites, not mentioned in text or inventory, identified on vertical aerial photographs

A. SORTIE NO. C.PE/UK/2352 SCALE: 1:10,000 HEIGHT: 16,400'
DATE;

	Photo No.	N. Grid Ref.	Description
1	4408	NY 987 426	Small circular structure with attached stone walling. Located in a loop of the Stanhope Burn.
2	4408	NY 987 427	Oval structure. ? Sheep stell. Located on opposite side of stream to 1 above.
3	4409	NY 999 426	Sub rectantulgar enclosure with ? hut circle in northern corner.
4	4410	NY 996 419	Oval mound or ? enclosure.
5	4410	NZ 006 438	Sub circular enclosure.
6	4411	NZ 015 44L	? circular structure. ? Sheepfold, at west end of Waskerley Reservoir.
7	4411	NZ 001 445	Sub rectangular enclosure above quarry ? industrial.
8	4416	NZ 033 435	Two ? circular enclosures.
9	3422	NZ 094 432	? Ditches revealed as crop marks.
10	3415	NZ 054 422	Two circular and one rectangular features revealed as crop marks.
11	3415	NZ 060 424	Sub rectangular enclosure.
12	3411	NZ 030 421	Sub rectangular enclosure.
13	3406	NY 996 414	Sub rectangular enclosure.
14	3406	NZ 002 414	Sub rectangular enclosure.
15	3406	NZ 003 414	Sub rectangular enclosure similar to 14. Visible in heather.
16	1409	NZ 034 397	? Sub circular enclosure adjacent to north side of fell wall enclosing a ruined structure at NZ 036 392.
17	2405	NZ 005 414	Two sub rectangular enclosures.
18	2407	-	A very straight track is visible on this photograph, running across the fell to Collier Law.
19	2416	NZ 071 419	? Lynchets visible at north end of Tunstall Reservoir.
20	2419	NZ 087 046	Sub rectangular enclosure.
21	3421	NZ 092 422	? Ditched mound.

B. SORTIE NO. 540/RAF/570 SCALE: 1:10,000 HEIGHT: 16,600'
DATE: 30.7.51.

	Photo No.	N. Grid Ref.	Description
1	4176	NZ 056 374	Oval enclosure ? entrance at north end. Located in first field west of Hare Law.
2	4178	NZ 038 371	? mound.
3	4178	NZ 043 373	? crop marks, circular features.
4	4187	NY 986 374	? oval enclosure cut by road south from Stanhope into Teesdale.
5	4190	NY 969 369	? circular feature, south-east of Snape Gate.
6	4191	NY 969 371	? irregular enclosure with internal circular feature. In first field east of Snape Gate.
7	4194	NY 952 382	? sub rectangular enclosure in second field south of Billing Shield.
8	4195	NY 938 376	? enclosure and field walls.
9	4198	NY 927 376	? sub rectangular enclosure to west of Dike House.
10	4202	NY 894 369	? enclosure south of High Wood Meadows.
11	4203	NY 886 386	? enclosure and later field walls on north side of main river. Enclosure runs at an angle to later field walls.
12	4204	NY 883 373	Circular feature.
13	4205	NY 877 384	? irregular sub rectangular enclosure cut by railway line.
14	4206	NY 866 382	Indeterminate shadow marks visible at High Greenwell, westwards along the road from Hawkwell Head.
15	4215	NY 812 383	? circular feature on the banks of the Scraith Burn.
16	3146	NY 946 362	? sub rectangular enclosure.
17	3148	NY 995 361	? field boundaries.
18	3159	NZ 075 357	? enclosure.
19	4154	NZ 028 349	Ditched enclosure, south of Allotment House.
20	3183	NZ 013 356	? sub rectangular enclosure.
21	3203	NY 896 368	Large rectangular enclosure near High Wood Meadows.

C. SORTIE NO: 540/RAF/616 SCALE: 1:10,000 HEIGHT: 16,666'
DATE: 11.10.51

	Photo No.	Grid Ref.	Description
1	3223 3224	NY 842 394	Circular enclosure with sub rectangular appendage to north of Burnhope Reservoir.
2	4186 4187	NY 903 427	Sub rectangular enclosure, south of Wolfclough.
3	4193	NY 943 432	Rectangular enclosure.
4	4145	NY 933 455	Irregular enclosure. ? low drystone walls.
5	4138	NY 984 454	? field walls visible on Horseshoe Hill.
6	4152	NY 895 445	? evidence for fields. Visible as light marks in heather, just below Redburn Edge.
7	4290	NY 865 388	? barrow.
8	4292	NY 881 376	Enclosure at Hill Top.
9	4293	NY 874 384	? circular feature.
10	4293	NY 876 376	? rectangular enclosure.
11	4295	NY 894 385	? traces of enclosures just south of High Kitty Crag.
12	4306	NY 976 384	Remains of field banks south of Allergill House.
13	4308	NY 990 376	? Lynchets.
k4	4206	NY 959 414	Enclosure.
15	3203	NY 975 401	? ditched enclosure east of Bell View Farm.
16	3208 3209	NY 944 404	? Parallel ditches south of Hanging Walls Farm.

D. SORTIE NO: 58/RAF/2131 SCALE: 1:10,000 HEIGHT: 30,000'
DATE: 28.3.57.

1	F220170	NZ 064 318	Circular feature
2	F220170	NZ 066 319	Circular feature.
3	F210163	NZ 102 296	? Circular feature.
4	F210163	NZ 106 294	? ploughed out field boundaries. Visible as cropmarks.

	Photo No.	Grid Ref.	Description
5	F210166	NZ 088 303	? sub rectangular enclosure, south west of Rackwood Hill Farm, banked and ditched.
6	F210169	NZ 067 305	Crop marks of 'D' shaped feature and various ditches or old field boundaries.
7	F210170	NZ 063 304	Section of ditch on Hamsterley Common.
8	F210276	NZ 071 335	? Oval enclosure, entrance to north.
9	F210229	NZ 095 345	? circular ditched enclosure to east of old quarry.
10	F210265	NZ 096 364	Crop mark of circular bank and ditched feature. Set back from river terrace.
11	F220163	NY 110 308	Circular feature by the side of road.
12	F220270	NZ 074 386	Sub circular feature with ? interrupted ditches, north of Baal Hill House.
13	F220301	NZ 088 403	? enclosure.
14	F220302 F220303	NZ 076 394	Indeterminate crop marks.

BIBLIOGRAPHY

ABERCROMBY, J., 1912. A Study of the Bronze Age Pottery of Great Britain and Ireland and its Associated Grave Goods. Two Volumes. Oxford.

ANDERSEN, J., 1961. 'Biology and management of roe-deer in Denmark.' La Terre et de la Vie, 1, 41-53.

ANON., 1860. 'Note on the exhibition of an arrowhead from Lanchester Common Co. Durham.' Archaeological Journal, 1860, 17, 60-61.

ANON., 1880-1885. 'A prae-historic cist burial at Sacriston.' Transactions of the Architectural and Archaeological Society of Durham and Northumberland, 3, 183-188.

ANON., 1892. 'Exhibited - by T.J. Bell, Cleadon Hall. A bronze leaf shaped sword.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, new series, 5, No. 21, 160-161.

ANON., 1897-8. 'Exhibited by Rev. H.E. Savage - fragments of two urns from Boldon.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, new series, 8. 206.

ANON., 1905. 'Exhibited: by Mr. John Robinson: A photograph of some fragments of cinerary urn etc.found .... at Fulwell ....' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, third series, 2, 78.

ANON., 1905a. 'Illustration of a "pre-historic stone hammer", found on supposed line of "Scot's Dyke", between Gainford and Ingleton Co, Durham.' Proceedings of the Society of Antiquaries, Newcastle-upon-Tyne, third series, 2, opp. 74.

ANON., 1911-12. 'Exhibited: by Mr. H.W. Thorburn. A small prehistoric bronze spear head ... Bishopley Crag Frosterley, in Weardale.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, third series, 5, 19.

ANON., 1914. 'Donations to the Museum.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, third series, 6, 186.

ANON., 1917. 'Correspondence of John Bell of Gateshead'. Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, third series, 8, 71.

ANON., 1918. 'Discovery of a stone axe at Whickham'. Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, third series, 8, 16.

ANON., 1925-26. 'Donations - from Mr. J.W. Fawcett, Consett. A pierced hammer head ... from Sately.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, fourth series, 2, 100.

ANON., 1925-26. 'Exhibited: by Mr. J. MacIntyre, Wear View Bishop Auckland, (2) Fragment of a perforated basalt macehead ... found ... at Shittlehope near Stanhope.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, fourth series, 2, 228, illustration.

ANON., 1931-32. 'Exhibits - Nov. 30th 1932, J. MacIntyre, Bishop Auckland. A fragment of bronze from Chapel Fell.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, fourth series, 5, 333-334.

ANON., 1937-38. 'Record of a stone axe-hammer from Nest House Estate, Felling, on loan to the Society.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, fourth series, 8, 148-149, pl. opp. 148.

ANON., 1938-39. 'A bronze winged axe from Birtley.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, fourth series, 9, 107-108.

ANON., 1938-39,a. 'Winged Axe from Knackshivan Farm, Willington.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, fourth series, 9, 149.

ANON., 1979 'A table of British implement petrology groups.' In, McKCLOUGH T.H. and CUMMINS W.A. (eds), Stone Axe Studies. C.B.A. Research Report No. 23, 127. London.

APSIMON, A.M., 1972. 'Biconical urns outside Wessex.' In, LYNCH, F., and BURGESS, C.B., (eds), Prehistoric Man in Wales and the West, 141-159. Bath.

ASHBEE, P., 1960. The Bronze Age Round Barrow in Britain. London.

ASHBEE, P., 1969. 'Timber mortuary houses and earthen long barrows again.' Antiquity, 43, 43-45.

ASHBEE, P., 1970. The Earthen Long Barrow in Britain. London.

ASHBEE, P., SMITH, I.F., and EVANS, J.G.,1979. 'Excavation of three long barrows near Avebury, Wiltshire.' Proceedings of the Prehistoric Society, 45, 207-300.

ATKINSON, K., 1968. The Pedology of Upper Weardale, Co. Durham. University of Durham, Unpublished Ph.D. Thesis. Durham.

ATKINSON, R.J.C., 1965. 'Wayland's Smithy'. Antiquity, 39, 126-133.

ATKINSON, R.J.C., 1972. 'Burial and population in the British bronze age.' In, LYNCH, F. and BURGESS, C.B., (eds.), Prehistoric Man in Wales and the West, 107-116. Bath.

BARNES, F., 1970. 'Microlithic sites on Walney Island.' Transactions of the Cumberland and Westmoreland Antiquarian and Archaeological Society, 70, 277-280.

BARTLEY, D.D., 1962. 'The stratigraphy and pollen analysis of lake deposits near Tadcaster Yorkshire.' New Phytologist, 61, 277-287.

BARTLEY, D.D., 1966. 'The pollen analysis of some lake deposits near Bamburgh in Northumberland.' New Phytologist, 65, 141-156.

BARTLEY, D.D., 1976. 'Palaeobotanical evidence.' In, SAWYER, P.H., (ed), Medieval Settlement: Continuity and Change, 226-235. London.

BARTLEY, D.D. et al., (1976). BARTLEY, D.D., CHAMBERS, C., and HART-JONES, B. 'The vegetational history of parts of south and east Durham.' New Phytologist, 77, 436-68.

BATEMAN, T., 1861. Ten Years Diggings in Celtic and Saxon Grave Hills. London-Derby.

BEAUMONT, P., 1968. A History of Glacial Research in Northern England from 1860 to the Present Day. Department of Geography, University of Durham, Occasional Paper Series, No. 9. Durham.

BEAUMONT, P., 1970. 'Geomorphology.' In, DEWDNEY, J.C., (ed), Durham County and City with Teeside. 26-45. Durham.

BECKINSALL, S., 1976. Life and Death in Prehistoric Northumberland. Newcastle.

BENNETT GIBBS, G., 1932. 'Neolithic an in County Durham.' Antiquities of Sunderland, 19, (1929-32), 13-29.

BENNETT GIBBS, G. and TEMPERLEY, G.W., 1931. 'On some flint flakes from Weardale.' Transactions of the Natural History Society of Northumberland and Durham, new series, 7-9, 191-192.

BERSU, G., 1940. 'Excavations at Little Woodbury, Part I.' Proceedings of the Prehistoric Society, 6, 30-111.

BINFORD, L.R., and BINFORD, S.R., 1966. 'A preliminary analysis of functional variability in the Mousterian of Levallois facies.' American Anthropology, 68, Pt. 2, 238-295.

BINFORD, L.R., and BINFORD, S.R., 1968. 'Stone tools and human behaviour.' Scientific American, 220, (4), 70-84.

BISAT, W.S., 1939. 'The relationship of the "Basement Clays" of Dimlington, Bridlington and Filey Bays.' Naturalist, 133-5, 161-168.

BOHMERS, A., 1956. 'Statistics and graphs in the study of flint assemblages.' Palaeohistoria, 5, 1-38.

BOHMERS, A., 1960. 'Statistique et graphique dans l'étude des industries lithiques prehistorique.' Palaeohistoria, 8, 15-38.

BOYLE, J.R., 1892. The County of Durham. London.

BRADLEY, R., 1972. 'Prehistorians and pastoralists in neolithic and bronze age England.' World Archaeology, 4, (1972-73), 192-204.

BRADLEY, R., 1978. The Prehistoric Settlement of Britain. London.

BRAMWELL, D., 1959. 'The excavation of Dowell Cave, East Sterndale 1958-9.' Derbyshire Archaeological Journal, 79, 97-109.

BRAMWELL, D., 1971. 'Excavation at Fox Hole Cave, High Wheeldon, 1961-70.' Derbyshire Archaeological Journal, 91, 1-19.

BRAYLEY, E.W., and BRITTON, J., 1803. Beauties of England, 5. London.

BREWIS, P., and COWEN, J.D., 1929. 'An encrusted cinerary urn of the bronze age.' Archaeologia Aeliana, fourth series, 6, 197-198.

BRÉZILLON, M.N., 1968. 'La Dénomination des objects de pierre taillee.' IVe Supplement à Gallia Prehistoire. Paris.

BRINKHUIZAN, D.C., 1977. 'The fish remains.' In, WOODMAN, P.C. 'Recent excavations at Newferry, Co. Antrim.' Proceedings of the Prehistoric Society, 43, 155-200, 197.

BRITTON, D., 1963. 'Traditions of metalworking in the later neolithic and early bronze age of Britain: Part I.' Proceedings of the Prehistoric Society, 29, 258-325.

BRITTON, D., 1971. 'The Heathery Burn Cave revisited.' In, SIEVEKING, G. de G. (ed), Prehistoric and Roman Studies, 20-37. London.

BROADBENT, N., 1975-77. 'Perforated stones, antlers and stone picks . Evidence for the use of the digging stick in Scandinavia and Finland.' TOR, 17, 63-107.

BRUCE, J.C., 1884. 'On recent discoveries in the Roman camp on the Lawe, South Shields.' Archaeologia Aeliana, new series, 10, 223-310, esp. 270.

BUCKLEY, F., 1920-1948. M.S. Notebooks and Drawing Books. Tolson Memorial Museum, Huddersfield. Unpublished.

BUCKLEY, F., 1925. 'The microlith industries of Northumberland.' Archaeologia Aeliana, fourth series, 1, 42-47.

BULMER, W., 1938. 'Note on a cist at Summerhill, Blaydon.' Archaeologia Aeliana, fourth series, 15, 218-221.

BULMER, W., 1939. 'A note on two more cists at Summerhill, Blaydon.' Archaeologia Aeliana, fourth series, 16, 260-263.

BU'LOCK, J.D., 1961. 'The bronze age in the north-west.' Transactions of the Lancashire and Cheshire Archaeological Society, 71, 1-42.

BURGESS, C.B., 1962. 'A palstave from Buckley, Flintshire with some notes on shield pattern palstaves.' Transactions of the Flintshire Historical Society, 20, 92-5.

BURGESS, C.B., 1968. Bronze Age Metalwork in Northern England. Newcastle-upon-Tyne.

BURGESS, C.B., 1968a. 'Bronze age dirks and rapiers as illustrated by examples from Durham and Northumberland.' Transactions of the Architectural and Archaeological Society of Durham and Northumberland, new series, 1, 3-20.

BURGESS, C.B., 1974. 'The bronze age'. In, RENFREW, A.C. (ed). British Prehistory - a New Outline, 165-232. London.

BURGESS, C.B., 1980. The Age of Stonehenge. London.

BURGESS, C.B., 1981. 'Excavations at Houseledge, Akeld, Northumberland.' Universities of Durham and Newcastle-upon-Tyne Archaeological Reports, 4, 7-10.

BURGESS, C.B., 1982. 'Excavation and survey on Black Law, Akeld, Northumberland.' Universities of Durham and Newcastle-upon-Tyne Archaeological Reports for 1981, 4-7.

BURGESS, C.B., and COGGINS, D., 1981. 'The Gilmonby, Co. Durham bronze hoard: a preliminary note.' Northern Archaeology, 2, (1), 13.

BURGESS, C.B., and COOMBS, D., 1979. 'Preface'. In, BURGESS, C.B. and COOMBS, D., (eds), Bronze Age Hoards: some finds Old and New, i-vii. B.A.R. British Series, 67. Oxford.

BURGESS, C.B., COOMBS, D., and DAVIES, D.G., 1972. 'The Broadward Complex and barbed spearheads.' In, LYNCH, F., and BURGESS, C.B. (eds), Prehistoric Man in Wales and the West, 211-283. Bath.

BURGESS, C.B., and COWEN, J.D., 1972. 'The Ebnal Hoard and early bronze age metalworking traditions.' In, LYNCH, F., and BURGESS, C.B. (eds), Prehistoric Man in Wales and the West, 167-182. Bath.

BURGESS et al., 1981. BURGESS, C.B., OVENS, M., and URIBE DE KELLETT, A. 'The ground and polished stone implements of north east England: A preliminary statement.' Northern Archaeology, 2, (1), 6-12.

BURGESS, C.B., and SHENNAN, S., 1976. 'The Beaker phenomenon: some suggestions.' In, BURGESS, C.B., and MIKET, R. (eds), Settlement and Economy in the Third and Second Millennia BC. B.A.R. British Series, 33, 309-331. Oxford.

BURGESS, C.B., and VARNDELL, G., 1978. 'Some notes on the chronology and development of Collared Urns.' Newsletter of the Northumbrian Archaeology Group, 2, (1), 24-33.

BURLEY, E., 1955-56. 'A catalogue and survey of the metalwork from Traprain Law.' Proceedings of the Society of Antiquaries of Scotland, 89, 118-227.

BURSTOW, G.P. and HOLLYMAN, G.A., 1957. 'Late Bronze Age settlement on Itford Hill, Sussex.' Proceedings of the Prehistoric Society, 23, 167-212.

BUTLER, J.J., 1963. 'Bronze age connections across the North Sea.' Palaeohistoria, 9, (entire volume).

CADE, J., 1785. 'Conjectures concerning some undescribed Roman roads and other antiquities in the County of Durham.' Archaeologia, 7, 79.

CADE, J., 1789 'Some observations on the Roman Station Cataractarium with an account of the antiquities in the neighbourhood of Piercebridge.' Archaeologia, 9, 276-291.

CALLANDER, J.G., 1920-21. 'Notices of (1) cinerary urns from Kingskettle, Fife, and (2) an early iron age cist on Kippit Hill, Dolphinton.' Proceedings of the Society of Antiquaries of Scotland, 55, 37-52.

CALLANDER, J.G., 1922-3. 'Scottish bronze age hoards.' Proceedings of the Society of Antiquaries of Scotland, 57, 123-166.

CAMPBELL, J.M., 1968. 'Territoriality among ancient hunters: Interpretations from ethnography and nature.' In, MEGGERS, R. (ed), Anthropological Archaeology in the Americas. Washington.

CAMPBELL, J.B., 1977. The Upper Palaeolithic of Britain: A study of Man and Nature in the Late Ice Age. Two volumes. Oxford.

CANTRILL, T.C., and COCKIN, G.M., 1916-17. 'Neolithic Flints from a chipping floor at Cannock Wood near Rugeley, South Staffordshire.' Transactions of the North Staffordshire Field Club, 51, 85-98.

CARR, R., 1859. 'On ancient remains found in the bed of the river Wear at Claxheugh, near Sunderland.' Transactions of the Tyneside Naturalists Field Club, 5, 117-122.

CARRUTHERS, R.G., 1953. Glacial Drifts and the Undermelt Hypothesis. Privately printed, Newcastle-upon-Tyne.

CASE, H.J., 1966. 'Were beaker people the first metallurgists in Ireland?' Palaeohistoria, 12, 141-177.

CASE, H.J., 1977. 'The beaker culture in Britain and Ireland.' In, MERCER, R., (ed), Beakers in Britain and Europe: Four Studies. B.A.R. Supplementary Series, 26, 71-1001. Oxford.

CAULFIELD, S., 1978. 'Star Carr - an alternative view.' Irish Archaeological Research Forum, 5, 15-22.

CHALLIS, A.J. and HARDING, D.W., 1975 Later Prehistory from the Trent to the Tyne. B.A.R., British Series, 20. Two volumes. Oxford.

CHAMBERS, C., 1974. The Vegetational History of Teesdale. University of Durham, unpublished Ph.D. Thesis. Durham.

CHERRY, J., 1961. 'Cairns in the Birker Fell and Ulpha Fell area.' Transactions of the Cumberland and Westmoreland Architectural and Archaeological Society, 61, 7-15.

CHERRY, J., 1963. 'Eskmeals sand-dunes occupation sites.' Transactions of the Cumberland and Westmoreland Antiquarian and Archaeological Society, 63, 31-52.

CHERRY, J., 1965. 'Flint chipping sites at Drigg.' Transactions of the Cumberland and Westmoreland Antiquarian and Archaeological Society, 65, 66-85.

CHERRY, J., and CHERRY, P.J., 1973. 'Mesolithic habitation sites at St. Bees, Cumberland.' Transactions of the Cumberland and Westmoreland Antiquarian and Archaeological Society, 65, 66-85.

CHILDE, V.G., 1930. The Bronze Age. Cambridge.

CHILDE, V.G., 1935. The Prehistory of Scotland. London.

CLACK, P.A.G., (ed), 1980. The Archaeology of the Durham Dales. Durham.

CLACK, P.A.G., and GOSLING, P.F., (eds), 1976. Archaeology in the North. Durham.

CLARK, J.G.D., 1932. The Mesolithic Age in Britain. Cambridge.

CLARK, J.G.D., 1934. 'The classification of a microlithic culture: the Tardenoisian of Horsham.' Archaeological Journal, 90, 52-77.

CLARK, J.G.D., 1934a. 'Derivative forms of the petit tranchet in Britain.' Archaeological Journal, 91, 34-58.

CLARK, J.G.D., 1952. Prehistoric Europe - The Economic Basis. London.

CLARK, J.G.D., 1954. Excavations at Star Carr. London.

CLARK, J.G.D., 1966. 'The invasion hypothesis in British prehistory.' Antiquity, 40, 176-177, fig. 1.

CLARK, J.G.D., 1968. 'The economic impact of the change from late glacial to post glacial conditions in Northern Europe.' VII International Congress of Anthropological and Ethnographic Sciences, 3, 241-244.

CLARK, J.G.D., 1972. Star Carr: a case study in bioarchaeology. Addison-Wesley Modular Publications, No. 10. Reading, Mass.

CLARK, J.G.D., and GOODWIN, H., 1940. 'A find of the late bronze age near Stuntney, Isle of Ely.' Antiquaries Journal, 20, 52-71.

CLARK, et al., 1960. CLARK, J.G.D., HIGGS, E.S., and LONGWORTH, I.H. 'Excavations at the Neolithic site at Hurst Fen, Midlenhall, Suffolk, 1954, 1957 and 1958.' Proceedings of the Prehistoric Society, 26, 202-245.

CLARKE, D.L., 1970. Beaker Pottery of Great Britain and Ireland. Two volumes. Cambridge.

CLARKE, D.L., 1973. 'Archaeology: the loss of innocence.' Antiquity, 47, 6-18.

CLARKE, D.L., 1976. 'Mesolithic Europe: the economic basis.' In, SIEVEKING, G. de G., LONGWORTH, I.H. and WILSON, K.E. (eds), Problems in Economic and Social Archaeology, 449-481. London.

COCKS, W.A., 1933-34. 'The Ryton cup and ring marked rock.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, fourth series, 6, 353-354.

COGGINS, D., and FAIRLESS, K.J., 1978. 'Excavations in Upper Teesdale 1972-77.' Durham University Archaeological Reports for 1977, 13-15.

COGGINS, D., and FAIRLESS, K.J., (forthcoming). 'Excavations at Bracken Rigg, Teesdale.' Transactions of the Architectural and Archaeological Society of Durham and Northumberland.

COGGINS, D., and YOUNG R., (in preparation). 'An early mesolithic site at Staple Crag, Teesdale.'

COLES, J.M., 1959-60. 'Scottish late bronze age metalwork; typology, distributions and chronology.' Proceedings of the Society of Antiquaries of Scotland, 93, 16-134.

COLES, J.M., 1962. 'European bronze age shields.' Proceedings of the Prehistoric Society, 28, 156-190.

COLES, J.M., 1963-64. 'Scottish middle bronze age metalwork.' Proceedings of the Society of Antiquaries of Scotland, 97, 82-156.

COLES, J.M., 1964. 'New aspects of the mesolithic settlement of south-west Scotland.' Transactions of the Dumfriesshire and Galloway Natural History and Antiquarian Society, 41 67-98.

COLES, J.M., 1968-69. 'Scottish early bronze age metalwork.' Proceedings of the Society of Antiquaries of Scotland, 101, 1-110.

COLES, J.M., 1971. 'The early settlement of Scotland: excavations at Morton, Fife.' Proceedings of the Prehistoric Society, 37, 284-366.

COLES, J.M., and SIMPSON, D.D.A., 1965. 'The excavation of a neolithic round barrow at Pitnacree, Perthshire.' Proceedings of the Prehistoric Society, 31, 34-57.

COLLINGWOOD, R.G., and WRIGHT, R.P., 1965. The Roman Inscriptions of Britain. Volume 1. Oxford.

COLLINS, E.R., 1930. 'The palaeolithic implements of Nidderdale, Yorkshire.' Proceedings of the Prehistoric Society of East Anglia, 6, 156-173.

COLLINS, E.R., 1933. 'Upper palaeolithic site in Nidderdale.' Proceedings of the Prehistoric Society of Enst Anglia, 7, 185-187.

COLLINSON, (no initial given), 1763. 'Report of the discovery of a skeleton at Fulwell.' Gentleman's Magazine, 33, October, 492.

COLT HOARE, T., 1812-1821. The Ancient History of South Wiltshire. Two volumes. London.

CONWAY, V.M., 1954. 'Stratigraphy and pollen analysis of southern Pennine blanket peats.' Journal of Ecology, 42, 117-147.

COOMBS, D.G., 1975. 'The Dover harbour bronze find - a bronze age wreck?' Archaeologia Atlantica, 1, (2), 193-195.

COOMBS, D.G., 1976. 'Excavations at Mam Tor, Derbyshire, 1965-1969.' In, HARDING, D.W., (ed.), Hillforts: Later Prehistoric Earthworks in Britain and Ireland, 147-152, London.

COOMBS, D.G., 1979. 'A late bronze age hoard from Cassiobridge Farm, Watford, Hertfordshire.' In, BURGESS, C.B., and COOMBS, D.G., (eds), Bronze Age Hoards: Some finds Old and New. B.A.R., British Series, 67, 197-233. Oxford.

CORCORAN, J. X. W. P., 1969. 'Excavation of two chambered cairns at Mid Gleniron Farm, Glenluce, Wigtownshire.' Transactions of the Dumfriesshire and Galloway Natural History and Antiquarian Society, 46, 29-90.

CORMACK, W.F., 1970 'A mesolithic site at Barsalloch, Wigtownshire.' Transactions of the Dumfriesshire and Galloway Natural History and Antiquarian Society, 47, 63-80.

CORMACK, W.F., and COLES, J.M., 1968. 'Mesolithic site at Low Clone, Wigtownshire.' Transactions of the Dumfriesshire and Galloway Natural History and Antiquarian Society, 45, 44-72.

COUPLAND, G., 1925. 'A microlithic industry, Durham.' Proceedings of the Prehistoric Society of East Anglia, 5, 62-64.

COUPLAND, G., 1932. 'A microlithic site on the Durham coast.' Proceedings of the Prehistoric Society of East Anglia, 6, 381.

COUPLAND, G., 1948. 'A mesolithic industry at "the Beacon", S.E. Durham.' Privately published, John Bellows, Gloucester.

COUPLAND, F., and COUPLAND, G., 1935. 'Further Tardenoisian discoveries on the north-east coast.' Proceedings of the Prehistoric Society, 1, 154.

COUPLAND, F.,and G., (unpublished). A Microlithic Flint Industry, Whitburn. Copy held in Sunderland Museum.

COWEN, J.D., 1931. 'Two bronze swords from Ewart Park, Wooler.' Archaeologia Aeliana, fourth series, 10, 185-199.

COWEN, J.D., 1971. 'A note on the Eastgate hoard.' Archaeologia Aeliana, fourth series, 49, 29-37.

COWIE, T.G., 1978. Bronze Age Food Vessel Urns. B.A.R., British Series, 55. Oxford.

COWLING, E.T., 1973. 'A mesolithic flint site: the Sandbeds, Otley, Yorkshire.' Yorkshire Archaeological Journal, 45, 1-12.

COWLING, E.T., 1976. 'Neolithic and bronze age graving and scoring tools from Mid-Wharfedale.' Yorkshire Archaeological Journal, 48, 27-34.

CRAWFORD, O.G.S., and WHEELER, R.E.M., 1921. 'The Llyn Fawr hoard and other hoards of the bronze age.' Archaeologia, 71, 133-140.

CUMMINS, W.A., 1979. 'Neolithic stone axes: distribution and trade in England and Wales.' In, McK.CLOUGH, T.H., and CUMMINS, W.A., (eds), Stone Axe Studies. CBA Research Report, No. 23, 5-12. London.

CUNLIFFE, B.W., 1978. Iron Age Communities in Britain, second edition. London.

CURWEN, E., 1928. 'Notes on some uncommon types of stone implements found in Sussex.' Sussex Archaeological Collections, 69, 77-91.

DANIEL, G.E., 1975. One Hundred and Fifty Years of Archaeology. London.

DARLING, F.F., 1937. A Herd of Red Deer: A Study of Animal Behaviour. London.

DAVEY, P.J., and FOSTER, E., 1975. Bronze Age Metalwork from Lancashire and Cheshire. Liverpool University Department of Prehistoric Archaeology, Work Notes I.

DAVIES, J., 1963. 'A mesolithic site on Blubberhouses Moor, Wharfedale, West Riding of Yorkshire.' Yorkshire Archaeological Journal, 41, 60-70.

DEAS, J.A., 1935-36. 'Note on the exhibition of an axe from Esh Winning.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, fourth series, 7, 14-15.

DODDS, W., 1965. 'Northgate, Weardale.' Durham University Archaeological News Bulletin, 34, 1-2.

DONALDSON, A., and TURNER, J., 1977. 'A pollen diagram from Hallowell Moss near Durham City.' Journal of Biogeography, 4, 25-33.

DRURY, J.L., 1976. 'Early settlement in Stanhope Park, Weardale c. 1406-79.' Archaeologia Aeliana, fifth series, 4, 139-150.

DUNHAM, K.C., 1948. Geology of the Northern Pennine Orefield. Vol. 1. Tyne to Stainmore. Memoir of the Geological Survey of the United Kingdom. London.

DUNHAM, K.C., 1964. 'Unpublished manuscript relating to the petrological examination of a stone axe from Rookhope.' Museum of Antiquities, Newcastle-upon-Tyne.

EGGLESTONE, W.M., 1882. Stanhope and its Neighbourhood. Darlington.

EGGLESTONE, W.M., 1883. All Around Stanhope. Darlington.

EGGLESTONE, W.M., 1886. Weardale Names of Field and Fell. Darlington.

EGGLESTONE, W.M., 1909-1910. 'Neolithic flint implements in Weardale.' Proceedings of the Society of Antiquaries, of Newcastle-upon-Tyne, third series, 4, 205-208.

EGGLESTONE, W.M., 1911-12. 'Neolithic flint implements - Weardale.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, third series, 5, 106-7.

EGGLESTONE, W.M., 1911-12a. 'Neolithic flint implements in Weardale.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, third series, 5, 115-117.

EGGLESTONE, W.M., 1915-16. 'A note on two possible Roman bronze paterae and a bronze ladle - found in a peat bog in Upper Weardale.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, third series, 7, 9-11.

EGGLESTONE, W.M., 1915-16a. 'Neolithic stone implements found in Upper Weardale.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, third series, 7, 178-179, pl. opp. 178.

EGGLESTONE, W.M., 1915-16b. 'Prehistoric stone axes from Upper Weardale.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, third series, 7, 194-196, fig. opp. 194.

EGGLESTONE, W.M., 1916. Picturesque Weardale. Darlington.

EHRENBERG, M.R., 1977. Bronze Age Spearheads from Berkshire, Buckinghamshire and Oxfordshire. B.A.R. British Series, 34. Oxford.

EHRENBERG, M.R., 1980. 'The occurrence of bronze age metalwork in the Thames: an investigation.' Transactions of the London and Middlesex Archaeological Society, 31, 1-15.

ELGEE, F., 1930. Early Man in North-East Yorkshire. Gloucester.

EOGAN, G., 1962. 'Some observations on the middle bronze age in Ireland.' Journal of the Royal Society of Antiquaries of Ireland, 92, 45-60.

EOGAN., G., 1964. 'The later bronze age in Ireland in the light of recent research.' Proceedings of the Prehistoric Society, 30, 268-351.

EOGAN, G., 1965. Catalogue of Irish Bronze Swords. Dublin.

EVANS, G.H., 1970. 'Pollen and diatom analyses of Late Quaternary deposits in Blelham Basin, North Lancashire.' New Phytologist, 69, 821-874.

EVANS, J., 1881. Ancient Bronze Implements. London.

EVANS, J., 1897. Ancient Stone Implements. London.

EVANS, J.G., 1975. The Environment of Early Man in the British Isles. London.

FAIRLESS, K.J., and COGGINS, D., 1980. 'Excavations at the early settlement site of Forcegarth Pasture North, 1972-74.' Transactions of the Architectural and Archaeological Society of Durham and Northumberland, new series, 5, 31-38.

FAWCETT, J.W., 1939. 'Two hitherto unrecorded burial cists in Sately parish, Co. Durham.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, fourth series, 9, 225-226.

FEACHAM, R.W., 1973. 'Ancient agriculture in the highland of Britain.' Proceedings of the Prehistoric Society, 39, 332-353.

FELL, C.I., 1964. 'Some cairns in High Furness.' Transactions of the Cumberland and Westmoreland Architectural and Archaeological Society, 64, 1-5.

FELL, C.I., and HILDYARD, E.J.W., 1953. 'Prehistoric Weardale, a new survey.' Archaeologia Aeliana, fourth series, 31, 98-116.

FELL, C.I., and HILDYARD, E.J.W., 1956. 'More flints from Weardale - a postscript.' Archaeologia Aeliana, fourth series, 34, 131-137.

FITZHUGH, W.W., 1972. Environmental Archaeology and Cultural Systems in Hamilton Inlet, Labrador: A survey of the Labrador coast from 3000 b.c. to the present. Smithsonian Contributions to Anthropology, 16.

FLEMING, A., 1971. 'Bronze age agriculture on the marginal lands of north-east Yorkshire.' Agricultural History Review, 19, 1-24.

FLEMING, A., 1972. 'The genesis of pastoralism in European prehistory.' World Archaeology, 4, (2), 179-191.

FLEMING, A., 1976. 'Early settlement and the landscape in West Yorkshire.' In, SIEVEKING, G. de G., LONGWORTH, I.H., and WILSON, K.E. (eds), Problems in Economic and Social Archaeology, 359-374. London.

FLEROV, K.K., 1952. Fauna of the U.S.S.R.: Musk Deer and Deer. Moscow: Academy of Sciences (English translation by the Israel programme for Scientific Translations, Jerusalem, 1960.)

FOLEY, R., 1981. 'A model of regional archaeological structure.' Proceedings of the Prehistoric Society, 47, 1-18.

FOLEY, R., 1981,a. Off-site Archaeology and Human Adaptation in Eastern Africa. Cambridge Monographs in African Archaeology, No. 3. B.A.R. International Series, 97. Oxford.

FORDYCE, W., 1857. History of Durham, 2. London.

FOWLER, P., 1981 'Later prehistory.' In, PIGGOTT, S., (ed), The Agrarian History of England and Wales, 1, Prehistory. 63-298. Cambridge.

FOX, C.F., 1927. 'An encrusted urn of the bronze age from Wales with notes on the origin and development of the type.' Antiquaries Journal, 7, 115-133.

FOX, C.F., 1932. The Personality of Britain. Cardiff.

FOX, C.F., 1933. 'The distribution of man in East Anglia c. 2300 BC - 500 AD. A contribution to the prehistory of the region.' Proceedings of the Prehistoric Society of East Anglia, 7, (2), 149-164.

FOX, A., and FOX, C.E., 1934. 'Forts and farms on Margam Mountain, Glamorgan.' Antiquity, 8, 395-413.

FOX, A., and C.F., and THRIEPLAND, J.M., 1943. 'The Excavation of two cairn cemereties near Hirwaun, Glamorgan.' Archaeologia Cambrensis, 99, 77-87.

FRENZEL, B., 1966. 'Climatic change in the Atlantic/Sub-boreal transition in the northern hemisphere: botanical evidence.' In, SAWYER, J. S., (ed), World Climate from 8000 to 0 B.C. Royal Meteorological Society, 89-123. London.

GARBUTT, G., 1819. History of Sunderland. Sunderland.

GEORGE, C., 1976. A Study of Later Prehistoric Settlement in Eastern County Durham. University of Durham, Unpublished, M.A. Dissertation. Durham.

GERLOFF, S., 1975. The Early Bronze Age Daggers in Great Britain and a Reconsideration of the Wessex Culture. Prähistoriche Bronzefunde, Vl, 2. Munich.

GERRARD, G.A.M., 1980. An Examination of the Burial Customs Practised by Beaker users in the British Isles. Saint David's University College, Lampeter. Unpublished Undergraduate Dissertation. Lampeter.

GERRARD, G.A.M. and YOUNG, R., (in preparation). 'Some thoughts on the burial customs of beaker users in Britain.'

GIBSON, A.M., 1978. Bronze Age Pottery in the North-East of England. B.A.R. British Series, 56. Oxford.

GIBSON, A.M., 1980. 'Bucket urn from Eggleston, Co. Durham.' In, COGGINS, D., and CLEWS, S., 'Archaeology in the Bowes Museum.' Transactions of the Architectural and Archaeological Society of Durham and Northumberland, new series, 5, 17-30.

GIBSON, W.J., 1944. 'Mace-heads of "cushion" type in Britain.' Proceedings of the Society of Antiquaries of Scotland, 78, 16-25.

GODWIN, H., 1956. The History of the British Flora. Cambridge.

GODWIN, H., 1959. 'The history of weeds in Britain.' British Ecological Society Symposium, No. 1, 1-10.

GODWIN, H., 1965. 'The beginnings of agriculture in north-west Europe.' In, HUTCHINSON, J.B., (ed), Essays on Crop Plant Evolution, 1-22. Cambridge.

GOULD, R. A., KOSTER, D.A., and SONTZ, A.H.L., 1971. 'The lithic assemblage of the Western Desert Aborigines of Australia.' American Antiquity, 36, 149-169.

GOWLAND, W., 1906. 'Copper and its alloys in prehistoric times.' Journal of the Anthropological Institute, 36, 23.

GRAHAM, A., 1956-57. 'Cairnfields in Scotland.' Proceedings of the Society of Antiquaries of Scotland, 90, 7-23.

GRAHAM, J., 1939. Weardale Past and Present.

GRAHAM, M., 1924. 'The annual cycle in the life of the mature cod in the North Sea.' Fishery Investigations, 2, 6, 6; 1-77.

GREEN, H.S., 1980. The Flint Arrowheads of the British Isles. B.A.R. British Series, 75. Two Volumes. Oxford.

GREENWELL, W.G., 1877. British Barrows. Oxford.

GREENWELL, W.G., 1894. 'Antiquities of the bronze age found in Heathery Burn Cave, Co. Durham.' Archaeologia, 54, 82-114.

GREENWELL, W.G., and PARKER BREWIS, W., 1909. 'The origin, evolution and classification of the bronze spearhead in Great Britain and Ireland.' Archaeologia, 61, 439-472.

GRIGSON, C., 1978. 'The late glacial and early flandrian ungulates of England and Wales - an interim view.' In, LIMBREY, S., and EVANS, J.G., (eds), The Effect of Man on the Landscape: the Lowland Zone. C.B.A. Research Report, No. 21, 46-56. London.

GRINSELL, L.V., 1953. Ancient Burial Mounds of England. London.

GRZIMEK, B., 1970. Enzyklopädie des Tierreiches. Zurich.

GUILBERT, G., 1975. 'Moel y Gaer, 1973: an area excavation of the defences.' Antiquity, 49, 109-117.

GUILBERT, G., 1976. 'Moel y Gaer (Rhosesmor) 1972-1973: an area excavation in the interior.' In, HARDING, D.W. (ed), Hillforts: Later Prehistoric Earthworks in Britain and Ireland, 303-317. London.

GUILBERT, G., 1977. 'The northern Welsh Marches: some recent developments.' In, COLLIS, J. (ed), The Iron Age in Southern Britain, 41-50. Sheffield University, Department of Prehistory and Archaeology. Sheffield.

HAMER, R., 1972. A Choice of Anglo-Saxon Verse. London.

HAMMOND, F.W., 1980-81. 'The interpretation of archaeological distribution maps: biases inherent in archaeological fieldwork.' Archaeo-Physika, 7, 193-216.

HARBISON P., 1968. 'Catalogue of Irish early bronze age associated finds containing copper and bronze.' Proceedings of the Royal Irish Academy, 67, c, 35.

HARBISON, P., 1969. The Axes of the Early Bronze Age in Ireland. Prähistoriche Bronzefunde, 9, 1. Zurich.

HARDING, A.F., 1979. 'Trial excavation at Ryhope Caves, Tyne and Wear 1975.' C.B.A.3, News Bulletin, Series 2, No. 8, Nov., 18-19.

HARDING , D.W., 1970. 'The prehistoric period.' In, DEWDNEY, J.C., (ed), Durham County and City with Teeside, 191-194. Durhamm.

HARDING, D.W., 1972-73. 'Letters concerning woodland management by Durham University at Maiden Castle.' Department of Archaeology, Durham University.

HARDING, D.W., 1978. 'Air photography in County Durham, 1977.' University of Durham Archaeological Reports for 1977, 7.

HARDING, D.W., and BLAKE, I.M., 1963. 'An early iron age settlement in Dorset.' Antiquity 37, 63-64.

HASELGROVE, C.C., 1980. 'Excavations at two cropmark sites on the magnesian limestone escarpment, Co. Durham.' Universities of Durham and Newcastle-upon-Tyne Archaeological Reports, 3, 5-8.

HASELGROVE, C.C., 1980a. 'A cropmark site on Strawberry Hill, Shadforth, Co. Durham.' Transactions of the Architectural and Archaeological Society of Durham and Northumberland, new series, 5, 39-44.

HASELGROVE, C.C., and ALLON, V., 1981. 'Excavations at West House, Coxhoe, Co. Durham.' Universities of Durham and Newcastle-upon-Tyne Archaeological Reports, 4, 16-20.

HAWKES, C.F.C., 1941. 'The looped and leaf-shaped bronze spearhead.' In, STONE, J.F.S., 'The Deverel-Rimbury Settlement on Thorny Down, South Wiltshire.' Proceedings of the Prehistoric Society, 7, 114-133, (128-131).

HAWKES, C.F.C., 1960. 'A scheme for the British bronze age.' Paper to the C.B.A. Conference on the British Bronze Age. London.

HAWKES, C.F.C., and SMITH, M.A., 1957. 'On some buckets and cauldrons of the bronze and early iron ages.' Antiquaries Journal, 37, 131-198.

HAWKE-SMITH, C.F., 1979. Man-Land Relations in Prehistoric Britain: The Dove-Derwent Interfluve, Derbyshire: A Study in Human Ecology. B.A.R., British Series, 64. Oxford.

HEATHCOTE, J.P., 1930. 'Excavations at barrows on Stanton Moor.' Journal of the Derbyshire Archaeological and Natural History Society, new series, 4, 1-44.

HEATHCOTE, J.P., 1936. 'Further excavations on Stanton Moor.' Journal of the Derbyshire Archaeological and Natural History Society, new series, 10, 21-42.

HEATHCOTE, J.P., 1939. 'Excavations on Stanton Moor.' Journal of the Derbyshire Archaeological and Natural History Society, new series, 13, 105-115.

HEPTNER, _et al_., 1966. HEPTNER, V.G., NASIMOVIC, A.A., and BANNIKOV, A.G. _Die Sängetiere der Sowjetunien_. Jena.

HEWART-CRAW, J., 1914. 'Excavation of two bronze age cairns in the parish of Foulden.' _Proceedings of the Society of Antiquaries of Scotland_, 48, 316-333.

HEYBROEK, H.M., 1963. 'Diseases and lopping for fodder as possible causes of a prehistoric decline of _Ulmus_.' _Acta Botanica Neerlandica_, 12, 1-11.

HICKS, S., 1971. 'Pollen analytical evidence for the effect of prehistoric agriculture on the vegetation of North Derbyshire.' _New Phytologist_, 70, 647-667.

HIGGS, E.S., and VITA-FINZI, C., 1972. 'Prehistoric economies: a territorial approach.' _In_. HIGGS, E.S., (ed), _Papers in Economic Prehistory_, 27-36. Cambridge.

HILDYARD, E.J.W., 1947. _Archaeology of Weardale: Third Annual Summary of Research_. Privately published.

HILDYARD, E.J.W., 1948. _Archaeology of Weardale: Fourth Annual Summary of Research_. Privately published.

HILDYARD, E.J.W., 1949. _Archaeology of Weardale: Fifth Annual Summary of Research_. Privately published.

HILDYARD, E.J.W., 1949a. 'Further excavations at Cambokeels in Weardale.' _Archaeologia Aeliana_, fourth series, 26, 177-207.

HILDYARD, E.J.W., 1955. _Archaeology of Weardale: Sixth Summary of Research 1950-1952_. Privately published.

HILDYARD, E.J.W., 1957. _Archaeology of Weardale: Summaries of Research carried out in 1945, 1946, 1947, 1953-54_. Privately published.

HILDYARD, E.J.W., and CHARLTON, J., 1947. 'A medieval site in Weardale.' _Archaeologia Aeliana_, fourth series, 25, 181-197.

H.M.S.O., 1971. _British Regional Geology: Northern England_ (4th Ed.). London.

HODGES, H., 1956. 'Studies in the late bronze age in Ireland, 2.' _Ulster Journal of Archaeology_, 19, 29-56.

HODGSON, G.B., 1903. _The Borough of South Shields._ Newcastle-upon-Tyne.

HODGSON, K.S., 1940. 'Excavations in the Bewcastle district.' _Transactions of the Cumberland and Westmoreland Antiquarian and Archaeological Society_, new series, 40, 154-166.

HOWCHIN, W., 1880. 'Notes on a find of prehistoric implements in Allendale with notices of similar finds in the surrounding district.' _Transactions of the Natural History Society of Northumberland, Durham and Newcastle_, 7, 210-222.

HOWELL, F.C., 1966. 'Observations on the earlier phases of the European lower palaeolithic.' In, CLARK, J.D. and HOWELL, F.C. (eds). Recent Studies in Palaeoanthropology. (American Anthropologist, 68, No. 2, pt. 2. Special publication), 88-201.

HOWELL, F.C., and CLARK, J.D., 1963. 'Acheulian hunter-gatherers of sub-Saharan Africa.' In, HOWELL, F.C., and BOURLIERE, F., (eds), African Ecology and Human Evolution, 458-533. Chicago.

HOWELL, F.C., COLE, G.H., and KLEINDIENST, M.R., 1967. 'Isimila, an Acheulian occupation site in the Iringa highlands, Southern Highlands province, Tanganyika.' Actes du IVe Congres Panafricain de Prehistoire et de l'Etude du Quaternaire, 2, 43-80.

HOWSE, R., 1861. 'Notes on the fossil remains of some recent and extinct mammalia found in the counties of Northumberland and Durham.' Transactions of the Tyneside Naturalists Field Club, 5, (2), 111-121.

HUTCHINSON, W., 1794. History and Antiquities of County Durham. Three volumes. Newcastle-upon-Tyne.

INGEBRIGSTEN, O., 1924. Hjortens Utbredelse: Norge. Naturui denskabelige, rekke No. 6. (First appeared in Bergens Museums Aartbok 1922-1923). Bergen.

INVENTARIA ARCHAEOLOGIA, 1956. Grave Groups and Hoards of the British Bronze Age (2). Great Britain, 3rd set., G.B. 14-18, (ten cards). The Reach Fen hoard, Cambridgeshire, G.B.17, (1-3). British Museum. London.

INVENTARIA ARCHAEOLOGIA, 1958. Late Bronze Age Hoards in the British Museum. Great Britain, 6th Set, G.B. 35-41, (ten cards). The Kilnhurst hoard, Yorks., England, G.B. 41 (1-6). British Museum. London.

INVENTARIA ARCHAEOLOGIA, 1968. Late Bronze Age finds in the Heathery Burn Cave, Co. Durham. Great Britain, 9th Set. GB 55 (ten cards). British Museum. London.

ISAAC, G.L., 1972. 'Early phases of human behaviour: models in lower palaeolithic archaeology.' In, CLARKE, D.L., (ed), Models in Archaeology, 167-199. London.

IVERSEN, J., 1949. 'The influence of prehistoric man on vegetation.' Danmarks Geologiske Undersøgelse, (IV), 3, 6, 1-25.

IVERSEN, J., 1960. 'Problems of the early post-glacial forest development in Denmark.' Danmarks Geologiske Undersøgelse, (IV), 4, 3, 1-32.

JACOBI, R.M., 1973. 'The British mesolithic.' In, KOZLOWSKI, S.K., (ed), The Mesolithic in Europe, 237-265. Warsaw.

JACOBI, R.M., 1976. Aspects of the Post Glacial Archaeology of England and Wales. University of Cambridge, Unpublished Ph.D. Thesis. Cambridge.

JACOBI, R.M., 1976a. 'Britain inside and outside mesolithic Europe.' Proceedings of the Prehistoric Society, 42, 67-84.

JACOBI, R.M., 1978. 'Northern England in the eighth millennium b.c.: an essay.' In, MELLARS, P.A., (ed), The Early Postglacial Settlement of Northern Europe, 295-332. London.

JACOBI, R.M., 1978a. 'The mesolithic of Sussex.' In, DREWETT, P. (ed), Archaeology in Sussex to AD 1500, C.B.A. Research Report, No. 29, 15-22. London.

JACOBI, et al., 1976. JACOBI, R.M., TALLIS, J.H., and MELLARS, P.A. 'The southern Pennine mesolithic and the ecological record.' Journal of Archaeological Science, 3, 307-320.

JARMAN, M.R., 1972. 'A territorial model for archaeology: a behavioural and geographical approach.' In, CLARKE, D.L., (ed), Models in Archaeology, 705-733. London.

JARRETT, M. J. G., 1965. 'Excavations at Maiden Castle, Durham in 1956.' Transactions of the Architectural and Archaeological Society of Durham and Northumberland, 11, (1958-65), 124-127.

JOBEY, G., 1959. 'Excavations at a native settlement at Huckhoe, Northumberland.' Archaeologia Aeliana, fourth series, 37, 217-78.

JOBEY, G., 1962. 'An iron agehomestead at West Brandon, Durham.' Archaeologia Aeliana, fourth series, 40, 1-34.

JOBEY, G., 1966. 'Excavations on pallisaded settlements and cairnfields at Alnham, Northumberland.' Archaeologia Aeliana, fourth series, 44, 5-48.

JOBEY, G., 1968. 'Excavations of cairns at Chatton-Sandyford, Northumberland.' Archaeologia Aeliana, fourth series, 46, 5-50.

JOBEY, G., 1968a. 'A radiocarbon date for the pallisaded settlement at Huckhoe.' Archaeologia Aeliana, fourth series, 46, 293-295.

JOBEY, G., 1970. 'An iron age settlement and homestead at Burradon, Northumberland.' Archaeologia Aeliana, fourth series, 48, 51-95.

JOBEY, G., 1971. 'Excavations at Brough Law and Ingram Hill.' Archaeologia Aeliana, fourth series, 49, 71-93.

JOBEY, G., 1972. 'Some local finds of neolithic and early bronze age stone implements in private possession.' Archaeologia Aeliana, fourth series, 50, 291-294.

JOBEY, G., 1973. 'A Romano-British settlement at Tower Knowe Wellhaugh, Northumberland 1972.' Archaeologia Aeliana, fifth series, 1, 55-80.

JOBEY, G., 1977. 'A food vessel burial on Dour Hill, Byrness, Northumberland.' Archaeologia Aeliana, fifth series, 5, 204-207.

JOCHIM, M., 1976. _Hunter-Gatherer Subsistence and Settlement, a Predictive Model._ London..

JOHNSON, G.A.L., 1970. 'Geology of Durham County.' _Transactions of the Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne_, 41, No. 1. Newcastle-upon-Tyne.

JOHNSON, G.A.L., 1970a. 'Geology'. _In_, DEWDNEY, J.C., (ed), _Durham County and City with Teeside_, 3-26. Durham.

JOHNSON, G.A.L., and DUNHAM, K.C., 1963. _The Geology of Moor House._ Nature Conservancy Monograph, No. 2, H.M.S.O. London.

JOHNSON, N., 1981. 'The location of rural settlement in pre-medieval Caernarvonshire.' _Bulletin of the Board of Celtic Studies_, 29, (2), May, 381-417.

JONES, R.F., 1977. 'Archaeology in the Bowes Museum.' _Transactions of the Architectural and Archaeological Society of Durham and Northumberland_, new series, 4, 1-6.

KAVANAGH, R.M., 1976. 'Collared and cordoned cinerary urns in Ireland.' _Proceedings of the Royal Irish Academy_, 76, c, 293-403.

KEILLER, _et al_., 1941. KEILLER, A., PIGGOTT, S., WALLIS, F.S. 'First report of the sub-committee of the south-western group of museums and art galleries on the petrological identification of stone axes.' _Proceedings of the Prehistoric Society_, 7, 50-72.

KERSHAW, P., 1967. _The Investigation of a Lowland Peat Bog in Co. Durham_. University of Durham, Unpublished M.Sc. Dissertation. Durham.

KING, J.E., 1962. 'Report on animal bones.' _In_, WYMER, J.J., 'Excavations at the Maglemosian sites at Thatcham, Berkshire, England.' _Proceedings of the Prehistoric Society_, 28, 329-61.

LACAILLE, A.D., 1951. 'A stone industry from Morar, Invernessshire: its mesolithic (Obanian) and later affinities.' _Archaeologia_, 94, 103-139.

LACAILLE, A.D., 1954. _The Stone Age in Scotland_. Publications of the Welcome Historical Medical Museum, New Series, No. 6. London.

LAMB, H.H., 1963. 'On the nature of certain climatic epochs which differed from the modern (1900-1939) normal.' _Proceedings of the W.M.O./UNESCO Rome, 1961 Symposium on Changes of Climate_, 125-150. Paris.

LAPLACE-JAURETSCHE, G., 1954. 'Application des methods statisques a l'étude du mésolithique.' _Bulletin de Societé Préhistorique Francaise_, 51, 127-139.

LEE, J., 1950. _Weardale Memories and Traditions_.

LEE, R.B., 1968. 'What hunters do for a living, or how to make out on scarce resources.' In, LEE, R.B., and DEVORE, I. (eds), Man the Hunter, 30-48. New York.

LEE, R.B., 1972. 'The !Kung bushmen of Botswana.' In, BICCHIERI, M.G., Hunters and Gatherers Today, 326-368. New York.

LEE, R.B., 1972a. '!Kung spatial organisation: An ecological and historical perspective.' Human Ecology, 1, (2), 125-147.

LEE, R.B., 1979. The !Kung San : Men, women and work in a Foraging Society. Cambridge.

LEE, R.B., and DEVORE, I. (eds), 1968. Man the Hunter. New York.

LONGSTAFFE, W.H.D., 1852. 'Durham before the conquest.' Proceedings of the Archaeological Institute, 1, 41-96. Newcastle.

LONGWORTH, I.H., 1961. 'The origins and development of the primary series in the collared urn tradition of England and Wales.' Proceedings of the Prehistoric Society, 27, 263-306.

LONGWORTH, I.H., 1969. 'Five sherds from Ford, Northumberland and their relative date.' Yorkshire Archaeological Journal, 42, 258-261.

LOWE, V.P.W., 1966. 'Observations on the dispersal of red deer on Rhum.' In, JEWELL, P.A., and LOIZOS, C. (eds), Play, Exploration and Territory in Mammals, 211-228. London.

LOWNDES, R.A.C., 1963. 'Celtic fields, farmsteads and burial mounds in the Lune Valley.' Transactions of the Cumberland and Westmoreland Antiquarian and Archaeological Society, 63, 79-95.

LOWTHER, P., 1980. 'Note on a hitherto unpublished bronze socketed axehead from Tyne and Wear.' Northern Archaeology, 1, (2), 8-11, pl. 1, 30.

LYNCH, F., 1972. 'Ring-cairns and related monuments in Wales.' Scottish Archaeological Forum, 4, 61-80.

MACE, A., 1959. 'An upper-palaeolithic open-site at Hengistbury Head, Christchurch, Hants.' Proceedings of the Prehistoric Society, 25, 233-259.

MALING, D.H., 1955. The Geomorphology of the Wear Valley. University of Durham. Unpublished Ph.D. Thesis. Durham.

MANBY, T.G., 1962. 'Some mesolithic sites in the Peak District and the Trent Basin.' Derbyshire Archaeological Journal, 82, 10-23.

MANBY, T.G., 1966. 'Creswellian site at Brigham, East Yorkshire.' Antiquaries Journal, 46, 211-228.

MANBY, T.G., 1967. The Neolithic Cultures of the north of England. University of Liverpool. Unpublished M.A. Thesis. Liverpool.

MANBY, T.G., 1970. 'Long barrows of northern England: structural and dating evidence.' Scottish Archaeological Forum, 2, 1-27.

MANBY, T.G., 1973. 'Neolithic pottery from Hasting Hill, Co. Durham.' Archaeologia Aeliana, fifth series, 1, 219-222.

MANBY, T.G., 1975. 'Neolithic occupation sites on the Yorkshire Wolds.' Yorkshire Archaeological Journal, 47, 23-60.

MANBY, T.G., 1979. 'Typology, materials and distribution of flint and stone axes in Yorkshire.' In, MCK.CLOUGH, T.H. and CUMMINS, W.A., (eds), Stone Axe Studies. CBA Reseearch Report, No. 23, 65-81. London.

MANLEY, G., 1941. Contributions in TEMPLE, A., The Land of Britain: The report of the land utilisation survey of Britain edited by L. Dudley Stamp. Part 47, Co. Durham. London.

MANN, L. McL., 1936. 'Antiquities in Shetland.' Nature, 138, 512.

MARTLEW, R., 1981. The Analysis of Prehistoric Settlement Location: the use of quantitative geographical techniques in archaeology with reference to the brochs of Scotland. Leicester University Geography Department, Occasional Paper 4. Leicester.

MEARS, J.B., 1936-37. 'Urn burials of the bronze age at Brackmont Mill, Leuchars, Fife.' Proceedings of the Society of Antiquaries of Scotland, 71, 252-278.

MEGAW, J.V.S., and SIMPSON, D.D.A., 1979. An Introduction to British Prehistory. Leicester.

MELLARS, P.A., 1970. 'An antler harpoon head of "Obanian" affinities from Whitburn, County Durham.' Archaeologia Aeliana, fourth series, 48, 337-346.

MELLARS, P.A., 1974. 'The palaeolithic and mesolithic.' In, RENFREW, C. (ed), British Prehistory: a New Outline, 41-99. London.

MELLARS, P.A., 1975. 'Ungulate populations, economic patterns and the mesolithic landscape.' In, EVANS, J.G., LIMBREY, S. and CLEERE, H. (eds), The Effect of Man on the Landscape: Highland Zone. CBA Research Report, No. 11, 49-56. London.

MELLARS, P.A., 1976. 'Settlement patterns and industrial variability in the British mesolithic.' In, SIEVEKING, G. de G., LONGWORTH, I.H. and WILSON, K.E., (eds), Problems in Economic and Social Archaeology, 375-400. London.

MELLARS, P.A., 1976, a. 'Fire, ecology, animal populations and man: a study of some ecological relationships in prehistory.' Proceedings of the Prehistoric Society, 42, 15-45.

MELLARS, P.A., 1978. 'Excavation and economic analysis of mesolithic shell middens on the island of Oronsay (Inner Hebrides).' In, MELLARS, P.A., (ed.), The Early Post Glacial settlement of Northern Europe, 371-396. London.

MELLARS, P.A., and REINHARDT, S., 1978. 'Patterns of mesolithic land-use in southern England: a geological perspective.' In, MELLARS, P.A., (ed.) The Early Postglacial Settlement of Northern Europe, 243-294. London.

MERCER, J., 1968. 'Stone tools from a washing-limit deposit of the highest post-glacial transgression, Lealt Bay, Isle of Jura.' Proceedings of the Society and Antiquaries of Scotland, 100, (1967-68), 1-46.

MERCER, J., 1974. 'Glenbatrick Waterhole, a microlithic site on the Isle of Jura.' Proceedings of the Society of Antiquaries of Scotland, 105, (1972-74), 9-32.

MEKHART, G. von., 1956. Über blecherne Zierbuckel (Faleren). Jahrbuch R.G.Z.M., 3, 28-116.

MIKET, R., 1976. 'The evidence for neolithic activity in the Mi field Basin, Northumberland.' In, BURGESS, C.B., and MIKET, R., (eds), Settlement and Economy in the Third and Second Millennia BC., B.A.R., British Series, 33, 113-142. Oxford.

MITCHELL, G.F., 1956. 'Post-boreal pollen diagrams from Irish raised bogs.' Proceedings of the Royal Irish Academy, 57, B, 185-251.

MITCHELL, G.F., 1965. 'Littleton Bog: Tipperary: an Irish agricultural record.' Journal Royal Society of Antiquaries, Ireland, 95, 121-132.

MITCHELL, W.C., 1919. History of Sunderland. Sunderland.

MORRISON, A., 1980. Early Man in Britain and Ireland: An Introduction to Palaeolithic and Mesolithic Cultures. London.

MORTIMER, J.R. 1905. Forty ears esearches in British and Saxon Burial Mounds in East Yorkshire. London.

MULHOLLAND, H., 1970. 'The microlithic industries of the Tweed Valley.' Transactions of the Dumfriesshire and Galloway Natural History and Antiquarian Society, 47, 81-110.

MUNRO, R., 1899. Prehistoric Scotland. Edinburgh.

MURPHY, J., 1970. The First European Agriculture. Edinburgh.

MACKENZIE, G., and ROSS, M., 1834. An Historical, Topographical and Descriptive View of the County of Durham. London.

MACLAUGHLIN, H., 1854. Memoir Written During the Survey of Watling Street from the Tees to the Scottish Border.

McCORD, N., and JOBEY, G. 1971. 'Notes on air reconnaisance in Northumberland and Durham -II.' Archaeologia Aeliana, fourth series, 49, 119-130.

McGRAIL, S., 1978. Logboats of England and Wales with comparative material from European and other countries. B.A.R. British Series, 51. Two volumes. Oxford.

McK. CLOUGH, T., 1979. 'Bronze age metalwork from Rutland.' In, BURGESS, C.B., and COOMBS, D., (eds), Bronze Age Hoards, Some Finds Old and New. B.A.R. British Series, 67, 117-135. Oxford.

N.C.H., 1930. Northumberland County History, 8. Newcastle.

NEEDHAM, S., 1979. 'A pair of early bronze age spearheads from Lightwater, Surrey.' In, BURGESS, C.B., and COOMBS, D., (eds), Bronze Age Hoards, Some Finds Old and New. B.A.R. British Series, 67, 1-39. Oxford.

NEEDHAM, S., 1979,a. 'Two recent British shield finds and their continental parallels.' Proceedings of the Prehistoric Society, 45, 111-134.

NICHOLS, J., 1804. The History and Antiquities of the County of Leicester, 3, 2. Leicester.

NICKSON, D., and MACDONALD, J., 1955. 'A preliminary report on a microlithic site at Drigg, Cumberland.' Transactions of the Cumberland and Westmoreland Antiquarian and Archaeological Society, 55, 17-29.

NORDHAGEN, R., 1954. 'Ethnobotanical studies on barkbread and the employment of wych-elm under natural husbandry.' Denmarks Geologiske Undersøgelse, (2), 80, 262-308.

OBERG, K., 1973. The Social Economy of the Tlingit Indians. Seattle.

O'CONNOR, B., 1975. 'Six prehistoric phalerae in the London Museum and a discussion of other phalerae from the British Isles.' Antiquaries Journal, 35, 215-226.

ORME, B., 1981. Anthropology for Archaeologists. London.

O'SULLIVAN, D.M., 1980. A Reassessment of the Early Christian Archaeology of Cumbria. University of Durham. Unpublished M.Phil. Thesis. Durham.

PALMER, S., 1977. Mesolithic Cultures of Britain. Poole, Dorset.

PENNINGTON, W., 1964. 'Pollen analyses from the deposits of six upland tarns in the Lake District.' Philosophical Transactions of the Royal Society, Series B, 248, 205-244.

PETCH, J.A., 1925. 'Roman Durham.' Archaeologia Aeliana, fourth series, 1, 1-34.

PHILIPS, C.W., 1936. 'The excavation of the Giants Hills long barrow, Skendleby, Lincs.' Archaeologia, 85, 37-106.

PICKERING, J., 1979. 'Aerial archaeology and the prehistoric landscape.' Landscape History, 1, 10-15.

PIGGOTT, S., 1958. 'Native economies and the Roman occupation of north Britain.' In, RICHMOND, I.A., (ed), Roman and Native in North Britain, 1-27. London.

PIGGOTT, S., 1981. 'Early prehistory.' In, PIGGOTT, S., (ed), The Agrarian History of England and Wales, 1, Prehistory, 3-59. Cambridge.

PITTS, M.W., 1978. 'On the shape of waste flakes as an index of technological change in lithic industries.' Journal of Archaeological Science, 5, 17-37.

PITTS, W.M., 1978, a. 'Towards an understanding of flint industries in post-glacial England.' Bulletin of the Institute of Archaeology, University of London, 15, 179-197.

PITTS, M.W., and JACOBI, R.M., 1979. 'Some aspects of change in flaked stone industries of the mesolithic and neolithic in southern Britain.' Journal of Archaeological Science, 6, 163-177.

PLOWRIGHT, G., 1978. Native Pottery: Hand made pottery in the prehistoric and Roman periods in north east England and southern Scotland. University of Durham. Unpublished M.A. Thesis. Durham.

POTTS, T., 1892. Sunderland; a History of the Town, Port, Trade and Commerce. Sunderland.

PRESTON, H., 1929. 'Flint sites in north-east Durham.' Vasculum, 15, (4), Nov., 137-141.

PRESTON, H., 1933. 'Microlithic and other industries of the Wear Valley.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, fourth series, 6, 109-116.

PRICE, T.D., 1978. 'Mesolithic settlement systems in the Netherlands.' In, MELLARS, P.A., (ed), The Early Postglacial Settlement of Northern Europe, 81-114. London.

PRIOR, T., 1968. The Roe Deer of Cranbourne Chase. London.

RADLEY, J., 1970. 'The mesolithic period in north-east Yorkshire.' Yorkshire Archaeological Journal, 42, 314-327.

RADLEY, J., and MELLARS, P.A., 1964. 'A mesolithic structure at Deepcar, Yorkshire, England and the affinities of its associated flint industries.' Proceedings of the Prehistoric Society, 30, 1-24.

RADLEY, et.al., (1974). RADLEY, J., SWITSUR, V.R. and TALLIS, J.H. 'The Excavation of three "narrow blade" mesolithic sites in the southern Pennines, England.' Proceedings of the Prehistoric Society, 40, 1-19.

RAISTRICK, A., 1931. 'Bronze age settlement of the north of England.' Archaeologia Aeliana, fourth series, 8, 149-165.

RAISTRICK, A., 1933. 'The distribution of mesolithic sites in the north of England.' Yorkshire Archaeological Journal, 31, 141-156.

RAISTRICK, A., 1933,a. 'Mesolithic sites of the north-east coast of England.' Proceedings of the Prehistoric Society of East Anglia, 7, 188-198.

RAISTRICK, A., 1933, b. 'Excavations of a cave at Bishop Middleham, Durham.' Archaeologia Aeliana, fourth series, 10, 111-122.

RAISTRICK, A., and BENNETT GIBBS, G., 1934. 'Prehistoric invasions of Northumberland and Durham.' Transactions of the Northern Naturalists Union, 1, (3), 187-199.

RAISTRICK, et al., 1935. RAISTRICK, A., COUPLAND, F., and COUPLAND, G., 'A mesolithic site on the south-east Durham coast.' Transactions of the Northern Naturalists Union, 1, (4), 207-216.

RAISTRICK, A., and HOLMES, P.F., 1962. 'Archaeology of Malham Moor.' Field Studies, 1, 73-100.

RAISTRICK, A., and JENNINGS, B., 1965. A History of Lead Mining in the Pennines. London.

RAISTRICK, A., and WESTOLL, T.S., 1933. 'A prehistoric site on the south Durham coast.' Vasculum, 19, 139-144.

RANKINE, W.F., 1949. 'Stone "maceheads" with mesolithic associations from south-eastern England.' Proceedings of the Prehistoric Society, 15, 70-76, figs. 1-3.

RANKINE, W.F., 1951. 'Quartzite pebble maceheads with hourglass perforation and their distribution in England.' Archaeological Newsletter, 4, (4), 53-55.

RANKINE, W.F., 1952. 'Implements of coloured flint in Britain: their distribution and the derivation of raw material.' Archaeological Newsletter, 4, (10), 145-149.

R.C.A.H.M., (Wales), 1956. An Inventory of the Ancient Monuments in Caernarvonshire, 1, East. London.

R.C.A.H.M., (Scotland), 1967. Peeblesshire: An Inventory of the Ancient Monuments, 1. Edinburgh.

R.C.A.H.M., (Wales), 1976. An Inventory of the Ancient Monuments in Glamorgan, Volume 1: Pre-Norman, Part 1, The Stone and Bronze Ages. Cardiff.

R.C.A.H.M., (Scotland), 1978. Lanarkshire: An Inventory of Prehistoric and Roman Monuments. Edinburgh.

REED, A.H., and AUSTIN, W., 1976. 'An archaeological survey of the Lanchester area.' In, CLACK, P.A.G., and GOSLING, P.F., (eds), Archaeology in the North, 213-225. Newcastle-upon-Tyne.

RENDELL, R., 1971. A Study of the Blanket Peat at Rookhope Head, Upper Weardale, Co. Durham. University of Durham, Unpublished M.Sc. Thesis. Durham.

RICHMOND, I.A., 1940. 'A spear head of the middle bronze age from Willington, Co. Durham.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, fourth series, (1939-42), 143-144, Illustrated opp. 136.

RICHARDSON, M.A., 1843. Local Historians Table Book, 2. Newcastle-upon-Tyne.

RICHARDSON, M.A., 1846. Local Historians Table Book, 3. Newcastle-upon-Tyne.

RITCHIE, A., 1976. Excavations at Skara Brae. London.

ROBERTS, B.K. 1975. 'Cockfield Fell.' Antiquity, 49, 48-50.

ROBERTS, B.K., 1977. Rural Settlement in Britain. London.

ROBERTS, B.K., 1978. 'Perspectives on prehistory.' In, DODGSHON, R.A., and BUTLIN, R.A., (eds), An Historical Geography of England and Wales, 1-27. London.

ROBERTS, B.K., 1980. 'The landscape and areas of significance.' In, CLACK, P.A.G. (ed), The Archaeology of the Durham Dales, 1-8. Durham.

ROBERTS et al., 1973. ROBERTS, B.K., TURNER, J., and WARD, P.F., 'Recent forest history and land use in Weardale, northern England.' In, BIRKS, H.J.B., and WEST, R.G., Quaternary Plant Ecology, 207-221. Oxford.

ROBINSON, J.F., 1891-92. 'A find of bronze age weapons near Medomsley, May 1891.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, new series, 5, 213-215.

ROBINSON, J.F., 1905-06. 'Ancient remains discovered at Grindon Hill near Sunderland.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, third series, 2, 197-199.

ROE, F.E.S., 1966. 'The battle axe series in Britain.' Proceedings of the Prehistoric Society, 32, 199-245.

ROE, F.E.S., 1968. 'Stone mace heads and the latest neolithic cultures of the British Isles.' In, COLES., J.M., AND SIMPSON, D.D.A., (eds), Studies in Ancient Europe: Essays Presented to Stuart Piggott, 145-172. Leicester.

ROE, F.E.S., 1979. 'Typology of stone implements with shaftholes.' In, McK.CLOUGH, T.H., and CUMMINS, W.A. (eds), Stone Axe Studies. CBA Research Report, No. 23, 23-48. London.

ROWLANDS, M.J., 1976. The Production and Distribution of Metalwork in the Middle Bronze Age in Southern Britain. B.A.R. British Series, 31. Two volumes. Oxford.

SAVORY, H.N., 1971. 'A Welsh bronze age hillfort.' Antiquity, 45, 251-261.

SAVORY, H.N., 1972. 'Copper age cists and cist cairns.' In, LYNCH, F. and BURGESS, C.B., (eds), Prehistoric Man in Wales and the West, 117-139. Bath.

SCOTT-ELLIOTT, J., and RAE, I., 1967. 'Small cairnfields of Dumfriess-shire.' Transactions of the Dumfriess-shire and Galloway Natural History and Antiquarian Society, third series, 44, 99-116.

SELKIRK, A., 1971. 'Ascott-under-Wychwood.' *Current Archaeology*, No. 24, 7-10.

SHEPPARD, I.A.G., 1976. 'Preliminary results from the beaker settlement at Rosinish, Benbecula.' *In*, BURGESS, C.B., and MIKET, R.J. (eds), *Settlement and Economy in the Third and Second Millennia BC.* B.A.R. British Series, 33, 209-220. Oxford.

SHORTER, A.H., 1935. 'Discoveries of flints near Stanhope in Weardale, Durham.' *Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne*, fourth series, 7, 27-31.

SHOTTON, F.W., 1968. 'Prehistoric man's use of stone in Britain.' *Proceedings of the Geological Association*, 79, 477-491.

SIMMONS, I.G., 1969. 'Evidence for vegetative changes associated with mesolithic man in Britain.' *In*, UCKO, P.J., and DIMBLEBY, G.W., (eds), *The Domestication and Exploitation of Plants and Animals*, 113-119. London.

SIMMONS, I.G., 1975. 'The ecological setting of mesolithic man in the highland zone.' *In*, EVANS, J.G., LIMBREY, S., and CLEERE, H. (eds), *The Effect of Man on the Landscape: Highland Zone*. C.B.A. Research Report, No. 11, 57-63. London.

SIMMONS, I.G., 1980. 'Late mesolithic societies and the environment of the uplands of England and Wales.' *Bulletin of the Institute of Archaeology, London*, 17, 111-129.

SIMMONS, I.G., and DIMBLEBY, G.W., 1974. 'The possible role of ivy in the mesolithic of western Europe.' *Journal of Archaeological Science*, 1, (3), 291-296).

SIMMONS, I.G., and TOOLEY, M.J., (eds), 1981. *The Environment in Britain Prehistory*. London.

SIMPSON, D.D.A., 1968. 'Food Vessels: associations and chronology.' *In*, COLES, J.M., and SIMPSON, D.D.A. (eds), *Studies in Ancient Europe: Essays Presented to Stuart Piggott*, 197-211. Leicester.

SIMPSON, D.D.A., 1968,a. 'Timber mortuary houses and earthen long barrows.' *Antiquity*, 42, 142-144.

SINCLAIR, J., (ed), 1795. *The Statistical Account of Scotland*, 16, 258-6. Edinburgh.

SJÖBECK, M., 1933. 'Lövängskulturen i Sydsverige.' *Ymer*, 1933, 33-66.

SMITH, A.G., 1961. 'The Atlantic - Sub-Boreal transition.' *Proceedings of the Linnaean Society, London*, 172, 38-49.

SMITH, A.G., 1965. 'Problems of inertia and threshold related to post-glacial habitat changes.' *Proceedings of the Royal Society*, Series B, 161, 331-342.

SMITH, A.G., 1970. 'The influence of mesolithic and neolithic man on British vegetation: a discussion.' In, WALKER, D., and WEST, R.G., (eds), Studies in the Vegetational History of the British Isles, 81-96. Cambridge.

SMITH, A.G., 1975. 'Neolithic and bronze age landscape changes in Northern Ireland.' In, EVANS, I.G., LIMBREY, S., and CLEERE, H., (eds), The effect of Man on the Landscape: the Highland Zone. C.B.A. Research Report, No. 11, 64-74. London.

SMITH, A.G., 1981. 'The neolithic.' In, SIMMONS, I.G., and TOOLEY, M.J., (eds), The Environment in British Prehistory, 125-209. London.

SMITH, D.B., and FRANCIS, E.A., 1967. The Geology of the Country Between Durham and West Hartlepool. Memoir of the Geological Survey of the United Kingdom, Sheet 27. London.

SMITH, F., 1909. The Stone Ages in North Britain and Ireland. London.

SMITH, I.F., 1965. Windmill Hill and Avebury: Excavations by Alexander Keiller 1925-1939. Oxford.

SMITH, I.F., 1979. 'The chronology of British Stone implements.' In, McK.CLOUGH, T.H., and CUMMINS, W.A. (eds), Stone Axe Studies. C.B.A. Research Report, No. 23. London.

SMITH, M.A., 1959. 'Some Somerset hoards and their place in the bronze age of southern Britain.' Proceedings of the Prehistoric Society, 25, 144-187.

SONNENFELD, J., 1962. 'Interpreting the function of primitive implements.' American Antiquity, 28, 56-65.

de SONNEVILLE-BORDES, D., 1960. La Palaéolithique Superieur en Périgord. Bordeaux.

SOPWITH, R., 1833. Alston Moor, Weardale and Teesdale.

SPRATT, D.A., 1978. 'Prehistoric field and land boundary systems in the North York Moors.' In, BOWEN, H.C., and FOWLER, P.J. (eds), Early Land Allotment in the British Isles. B.A.R. British Series, 48, 115-118. Oxford.

SPRATT, D.A., 1981. 'Prehistoric boundaries on the North Yorkshire Moors.' In, BARKER, G.W., (ed), Prehistoric Communities in Northern England, 87-103. University of Sheffield, Department of Prehistory. Sheffield.

SPRATT, D.A., 1982. Prehistoric and Roman Archaeology of North-East Yorkshire. B.A.R. British Series, 104. Oxford.

SPRATT, et al., 1976. SPRATT, D.A., GODDARD, R.E., and BROWN, D.R. 'Mesolithic settlement sites at Upleatham, Cleveland.' Yorkshire Archaeological Journal, 48, 19-26.

SPRATT, D.A., and SIMMONS, I.G., 1976. 'Prehistoric activity and environment on the North York Moors.' Journal of Archaeological Science, 3, 193-210.

SQUIRES, R.H., 1970. A Contribution to the Vegetational History of Upper Teesdale.' University of Durham. Unpublished Ph.D. Thesis. Durham.

SQUIRES, R.H., 1971. 'Flandrian history of the Teesdale rarities.' Nature, 229, 43-44.

STEER, K.A., 1938. The Archaeology of Roman Durham. University of Durham. Unpublished Ph.D. Thesis. Durham.

STEVENS, J.H., and ATKINSON, K., 1970. 'Soils.' In, DEWDNEY, J.C., (ed), Durham County and City with Teeside, 46-57. Durham.

STEVENSON, J.B., 1975. 'Survival and discovery.' In, EVANS, J.G., LIMBREY, S., and CLEERE, H., (eds), The Effect of Man on the Landscape: The Highland Zone. C.B.A. Research Report, No. 11, 104-108. London.

STILES, D., 1977. 'Ethnoarchaeology: a discussion of methods and applications.' Man, new series, 12, 87-103.

STUKELEY, W., 1725. Iter Boreale. M.S.Eng.Misc. e.384, now in Bodleian Library, Oxford. (Later published as Itinerarium Curiosum in 1776 but not including reference to the Hylton axe.)

SUMMERS, J.W., 1858. History and Antiquities of Sunderland, 1. Sunderland.

SUNDERLAND ECHO, 1974. 'Report on the finding of a perforated stone implement on Roker beach.' 11.10.74.

SURTEES, R., 1816-1840. The History and Antiquities of the County Palatine of Durham. 4 volumes.

SWITSUR, V.R., and JACOBI, R.M., 1979. 'A Radiocarbon chronology for the early postglacial stone industries of England and Wales.' In, BERGER, R., and SUESS, H.E., (eds), Radiocarbon Dating, Proceedings of the Ninth International Conference, Los Angeles and La Jolla, 1976, 41-68. London.

TAINTER, J.A., 1979. 'The Mountain Air lithic scatters: settlement patterns and significance evaluation of low density surface sites.' Journal of Field Archaeology, 6, 463-469.

TAIT, J., 1965. Beakers from Northumberland. Newcastle-upon-Tyne.

TALLIS, J.H., 1964. 'Studies in southern Pennine peats, I. The general pollen record.' Journal of Ecology, 52, 323-331.

TANSLEY, A.G., 1965. The British Isles and their Vegetation, 4th ed. Cambridge.

TAUBER, H., 1965. 'Differential pollen dispersion and the interpretation of pollen diagrams.' Danmarks Geologiske Undersøgelse 2, 1-69.

TAYLOR, C.C., 1972. 'The study of settlement patterns in pre-Saxon Britain.' In, UCKO, P.J., TRINGHAM, R., and DIMBLEBY, G.W. (eds), Man, Settlement and Urbanism, 109-113. London.

TAYLOR, J.A., 1975. 'The role of climatic factors in environmental and cultural changes in prehistoric times.' In, EVANS, J.G., LIMBREY, S., and CLEERE, H., (eds), The Effect of Man on the Landscape: the Highland Zone. C.B.A. Research Report, No. 11, 6-19. London.

TAYLOR PAGE, F.J., 1962. The Red Deer. London.

TEGNER, H.S., 1951. The Roe Deer, their history, habitats and pursuit. London.

THOMAS, A.C., 1970. 'Bronze age spade marks at Gwithian, Cornwall.' In, GAILEY, A.,and FENTON, A., (eds), The Spade in Northern and Atlantic Europe, 10-17. Belfast.

THOMAS, D.H., 1971. Prehistoric Subsistence - Settlement Patterns of the Reese River Valley, Central Nevada. University of Claifornia. Unpublished Ph.D. dissertation.

THOMAS, N., 1960. A Guide to Prehistoric England. London.

THOMPSON, D., 1939. 'The seasonal factor in human culture.' Proceedings of the Prehistoric Society, 5, 209-221.

TILLEY, C.Y., 1979. Post-Glacial Communties in the Cambridge Region: Some Theoretical Approaches to Settlement and Subsistence. B.A.R. British Series, 66. Oxford.

TOOLEY, M.J., 1978. 'The history of Hartlepool Bay.' International Journal of Nautical Archaeology and Underwater Exploration, 7, (1), 71-75.

TOPPING, P., 1981. 'The prehistoric field systems of College Valley: North Northumberland.' Northern Archaeology, 2, (1), 14-33.

TOULMIN-SMITH, L., 1907. The Itinerary of John Leland in or about the years 1535-43. Pt. 1. New York/London.

TRECHMANN, C.T., 1905. 'Neolithic remains on the Durham coast.' The Naturalist, 587, 361-363.

TRECHMANN, C.T., 1912. 'Notes on neolithic chipping sites in Northumberland and Durham.' Transactions of the Natural History Society of Northumberland, Durham and Newcastle, new series, 4, 67-85.

TRECHMANN, C.T., 1913. 'Recent finds of prehistoric remains at Hasting Hill near Offerton.' Antiquities of Sunderland, 15, 1-6.

TRECHMANN, C.T., 1914. 'Prehistoric burials in County Durham.' Archaeologica Aeliana, third series, 11, 119-177.

TRECHMANN, C.T., 1914, a. 'Some prehistoric remains in the county of Durham.' Antiquities of Sunderland, 15, 32-36.

TRECHMANN, C.T., 1928. 'A supposed implement of quartzite from beneath the boulder clay of the Durham coast.' Geological Magazine, 65, 25-29.

TRECHMANN, C.T., 1936. 'Mesolithic flints from the submerged forest at West Hartlepool.' Proceedings of the Prehistoric Society, 2, 161-168.

TROELS-SMITH, J., 1953. 'Ertebøllekultur-bondekultur.' Aarb. Nord. Oldkynd. Hist. 1953, 1-62.

TROELS-SMITH, J., 1955. 'Pollenanalytischen untersuchungen zu einigen Schweizerischen Pfahltsau problemen.' In, GUZAN, W.U. (ed), Das Pfahlauproblem. Monograph Ur-und Fru-gesch. Schweiz. 2. Basle.

TROELS-SMITH, J., 1960. 'Ivy, mistletoe and elm: climatic indicators - fodder plants: a contribution to the interpretation of the pollen zone border VII-VIII.' Danmarks Geologiske Undersøgelse (4), 4, 1-32.

TRUMP, B., 1962. 'The origin and development of British middle bronze age rapiers.' Proceedings of the Prehistoric Society, 28, 80-102.

TUCKER, C., 1867. 'Antiquities of bronze found in Devonshire.' Archaeological Journal, 24, 110-122.

TURNBULL, P., 1978. 'Interim account of excavations at Stockley Beck Camp.' In, TURNBULL, P., and JONES, R.F.J., (eds), The Archaeology of the Coal Measures and the Magnesian Limestone Escarpment in Co. Durham: A Preliminary Survey. Bowes Museum Archaeological Reports, 1, 22. Barnard Castle.

TURNBULL, P., and JONES, R.F.J., 1978. 'The Archaeology of the Coal Measures and the Magnesian Limestone Escarpment in Co. Durham: A Preliminary Survey.' Bowes Museum Archaeological Reports, 1. Barnard Castle.

TURNER, J., 1965. 'A contribution to the history of forest clearance.' Proceedings of the Royal Society, series B, 161, 343-354.

TURNER, J., 1970. 'Vegetational history.' In, DEWDNEY, J.C., (ed), Durham county and City with Teeside, 123-133. Durham.

TURNER, J., 1970,a. 'Post neolithic disturbance of British vegetation.' In, WALKER, D., and WEST, R.G., Studies in the Vegetational History of the British Isles, 97-116. Cambridge.

TURNER, et al., 1973. TURNER, J., HEWETSON, W.P., HIBBERT, F.A., LOWRY, K.H., and CHAMBERS, C. 'The history of the vegetation and flora of Widdybank Fell and Cow Green Reservoir Basin, Upper Teesdale.' Philosophical Transactions of the Royal Society, Series B, 265, 327-402.

TURNEY-HIGH, H.H., 1937. 'The Flathead Indians of Montana.' Memoirs of the American Anthropological Association, 48.

TYLECOTE, R.F., 1962. Metallurgy in Archaeology: A Prehistory of Metallurgy in the British Isles. London.

TYSON, N., 1972. A Bronze Age [Beaker] Cairn at Wind Hill, Haywood, Lancashire, with a Note on V-Bored Buttons. Privately published. Bury Archaeology Group. Bury.

V.C.H., 1905. The Victoria History of the Counties of England: Durham, 1. London.

V.C.H., 1907. The Victoria History of the Counties of England: Lancashire, 1. London.

VITA-FINZI, C., 1978. Archaeological Sites in their Setting. London.

VITA-FINZI, C., and HIGGS, E.S. 1970. 'Prehistoric economy in the Mount Carmel area of Palestine: site catchment analysis.' Proceedings of the Prehistoric Society, 36, 1-37.

WAATRINGE, GROENMAN-VAN, W., 1967. 'The elm decline and the first appearance of Plantago Major.' Vegetation, 15, 292-297.

WAINWRIGHT, G.J., 1979. Mount Pleasant: Excavations 1970-71. London.

WAINWRIGHT, G.J., and LONGWORTH, I.H., 1971. Durrington Walls: Excavations 1966-1968. London.

WAKE, T., and WRIGHT, R.P., 1951. 'An early bronze age cist at Kelloe Law, Co. Durham.' Archaeologia Aeliana, fourth series, 29, 213-220.

WALKER, D., 1956. 'A site at Stump Cross, Grassington, Yorkshire and the age of the Pennine microlithic industry.' Proceedings of the Prehistoric Society, 22, 23-28.

WALKER, D., 1965. 'Excavations at Barnscar 1957-8.' Transactions of the Cumberland and Westmoreland Antiquarian and Archaeological Society, 65, 53-65.

WATANABE, H., 1968. 'Subsistence and ecology of northern food gatherers with special reference to the Ainu.' In, LEE, R.B., and DEVORE, I., (eds), Man the Hunter, 69-77. New York.

WATANABE, H., 1972. 'The Ainu.' In, BICCHIERI, M.G., (ed), Hunters and Gatherers Today, 451-484. Washington.

WATTS, Rev., A., 1915. 'A prehistoric implement.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, third series, 7, 152-157.

WATTS, V.E., 1970. 'Place Names.' In, DEWDNEY, J.C., (ed), Durham County and City with Teeside, 251-268. Durham.

WEBLEY, D.P., 1976. 'How the west was won: prehistoric land-use in the Southern Marches.' In, BOON, G.C., and LEWIS, H.J., (eds), Welsh Antiquity, 19-35. Cardiff.

WEINBERG, D., 1978. 'Models of southern Kwakiutl social organisation.' In, COX, B., (ed), Cultural Ecology, 227-253. Toronto.

WESTGATE, W.A., 1957. Some Aspects of the Geomorphology of the Durham Coast. University of Durham. Unpublished Ph.D. Thesis. Durham.

WESTHOFF, V., and VAN LEEUWEN, C.G., 1966. 'Ökologische und systematische Beziehungen zwischen natürlicher und anthropogener vegetation.' In, Anthropogene Vegetation, 156-197. (Beriche über das Internationale Symposium in Stolzenau/Weser 1961). Den Haag.

WHEELER, A., 1977. 'The origin and distribution of the freshwater fishes of the British Isles.' Journal of Biogeography, 4, 1-24.

WHITCOMB, N.R., 1968. 'Two prehistoric dugout canoes from the river Wear at Hylton, near Sunderland, County Durham.' Archaeologia Aeliana, fourth series, 46, 297-309.

WHITE, J.P., and THOMAS, D.H., 1972. 'Ethno-taxonomic models and archaeological interpretation in New Guinea Highlands - what mean these stones?' In, CLARKE, D.L., (ed), Models in Archaeology, 275-308. London.

WHITTLE, A.W.R., 1977. The Earlier Neolithic of Southern England and its Continental Background. B.A.R. Supplementary Series, 35. Oxford.

WILLIAMS, R.B.G., 1973. 'Frost and the works of man.' Antiquity, 47, 19-31.

WILLIMOT, S.G., and GILCHRIST SHIRLAW, D.W., 1960. 'Soils and deposits in the Durham area, 1, Fluvioglacial soils.' Proceedings of the University of Durham Philosophical Society, Series, A, 13 (14), 133-147.

WILMSEN, E.N., 1968. 'Functional analysis of flaked stone artefacts.' American Antiquity, 33, (2), 156-161.

WILMSEN, E.M., 1970 'Lithic analysis and cultural inference: a paleo-Indian case.' University of Arizona Anthropological Papers, 16, 70-71.

WILSON, V., 1948. British Regional Geology: East Yorkshire and Lincolnshire. O.H.M.S. London.

WILSON, W., 1822. 'Communications respecting implements of ancient brass.' Archaeologia Aeliana, first series, 1, 13-16.

WINDLE, B.C.A., 1904. Remains of the Prehistoric Period in Britain. London.

WOODBURN, J., 1968. 'Stability and flexibility in Hadza residential groupings.' In, LEE, R.B., and DEVORE, I. (eds), Man the Hunter, 103-110. New York.

WOODHEAD, A., 1966. 'A bronze age urn from West Hartlepool.' Archaeologica Aeliana, fourth series, 44, 237-239.

WOODMAN, P.C., 1976. 'The Irish mesolithic/neolithic transition.' In, DE LAET, S.J., (ed), Acculturation and Continuity in Atlantic Europe, Proceedings of the IVth Atlantic Colloquium, 296-309. The Hague.

WOODMAN, P.C., 1978. The Mesolithic in Ireland. B.A.R. British Series, 58. Oxford.

WOOLACOTT, D., 1905-1906. 'On an exposure of the 100' raised beach at Cleadon, 1905-1906.' Proceedings of the University of Durham Philosophical Society, 2, 243-246.

WOOLACOTT, D., 1921. 'The interglacial problem and the glacial and post-glacial sequence in Northumberland and Durham.' Geological Magazine, 58, 1-32, 60-69.

WOOLER, E., 1910. 'Note on a stone axe found near Cauldron Snout.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, third series, 4, 199.

WOOLER, E., 1911-12. 'Exhibited by Mr. Wooler, F.S.A. A pierced stone axe of felsite ... from Stanley Farm, Crook.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, third series, 5,37. Second illustration facing 19.

WOOLER, E., 1913-14. 'Note on the exhibition of a perforated stone hammer found in Weardale.' Proceedings of the Society of Antiquaries of Newcastle-upon-Tyne, third series, 6, 92, pl. opp. 92.

WYMER, J.J., 1962. 'Excavations at the Maglemosian sites at Thatcham, Berkshire, England.' Proceedings of the Prehistoric Society, 28, 329-361.

WYMER, J.J., 1968. Lower Palaeolithic Archaeology in Britain: as represented by the Thames Valley. London.

WYMER, J.J., and BONSALL, C.J., (eds), 1977. Gazetteer of Mesolithic sites in England and Wales with a Gazetteer of Upper Palaeolithic sites in England and Wales. C.B.A. Research Report, No. 20. London.

WYMER, J.J., and STRAW, A., 1977. 'Hand axes from beneath glacial till at Welton-le-Wold, Lincolnshire and the distribution of palaeoliths in Britain.' Proceedings of the Prehistoric Society, 43, 355-361.

YOUNG, R., 1980. 'An inventory of barrows in Co. Durham.' Transactions of the Architectural and Archaeological Society of Durham and Northumberland, new series, 5, 1-16.

YOUNG, R., forthcoming. 'The worked flint from Piercebridge.' In, SCOTT, P.R., and LARGE, S., Excavations at Piercebridge, (in preparation).

YOUNG, R., and WELFARE, A.T., 1977. 'Excavations at Crawley Edge Co. Durham.' C.B.A. 3, Archaeological News Bulletin, series 1, 15, January, 3-5.

YOUNG, R., and WELFARE, A.T., 1978. 'Excavations at Crawley Edge, Stanhope in Weardale 1976-7.' Durham University Archaeological Reports for 1977, 8-10.